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WHEN SHOULD A CHILD BEGIN SCHOOL?

Educational Psychology Monographs

WHEN SHOULD A CHILD BEGIN SCHOOL?

An Inquiry Into the Relation Between the Age of Entry and School Progress.

BY

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PREFATORY NOTE.

The results of this inquiry are now to be published for the first time. Some of them have been privately circulated, and a few of the tables, together with the methods employed, were discussed at a meeting of the Inspectors of the Education Committee for London in the Autumn of 1905.

I tender my thanks to Sir Francis Galton and Professor Karl Pearson, who, some years ago, kindly considered this research in its statistical aspects; but I hasten to say that the responsibility for all error, both of method and calculation, is wholly mine.

I wish also to express my indebtedness to the teachers who helped me in this inquiry, especially to those who assisted me in preparing the tables and working out the coefficients of correlation.

I started the inquiry with an opinion in favour of early entry; but my only regret at the conclusion arrived at is due to the pain, as of wasted effort, felt by more than one excellent Infants' Mistress to whom the full force of the figures came home.

W. H. W.

London, August, 1910.

STATISTICAL NOTE.

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The formula for correlation which is used throughout the following research is the well-known Pearson formula:

$$r = \frac{\Sigma xy}{n\sigma_1\sigma_2}$$

Its meaning and application will become clearer to the non-statistical if it is considered in relation to one or two examples.

Let us suppose that we have seven boys who receive marks for Arithmetic and marks for English Composition; and let us suppose, for illustrative purposes, that the marks are as given in the following table:

Name.	Marks for Arithmetic.	x's.	x's squared.	Marks for Composition.	y's.	y's squared.	xy's.
A. B.	7	+3	9	14	+6	36	+18
C. D.	6	+2	4	12	+4	16	+8
E. F.	5	+1	1	10	+2	4	+2
G. H.	4	0	0	8	0	0	0
I. J.	3	—1	1	6	—2	4	+2
K. L.	2	—2	4	4	—4	16	+8
M. N.	1	—3	9	2	—6	36	+18
	Av.=4		Total=28	Av.=8		Total=112	Sum=56
			Av.=4			Av.=16	
			$\sqrt{4}=2$			$\sqrt{16}=4$	

A casual glance will show us that there is a perfect positive correlation between the marks for the two subjects, arithmetic and composition. The boys strong in one subject are proportionately strong in the other, and the weak boys in one subject are proportionately weak in the other. Perfect pos-

itive correlation is expressed by unity or, more exactly, by +1. Let us see how this value would be obtained by means of the calculations required for the given formula.

First find the average mark in the first series of marks, namely, those for Arithmetic. This is seen to be 4. Now find the deviation from the average of each individual mark in the first series, of A. B's mark, of C. D's mark, and so on. These deviations are shown in the second column of figures starting from the left, and constitute the "x's" of the Pearson Formula. The x's are now squared, as given in the next column of figures to the right. These squares are added up and their average found, which in this case =4. Finally, the square root of the average of the squares is found (=2) and this figure is the "σ_1" (standard deviation), of the given formula. Corresponding operations with the marks for Composition enable us to find the y's and "σ_2" required by the formula—a glance at the table will show what these are. The last column of figures to the right shows the xy's required. These are obtained by the multiplication of the first series of deviations (x's) into the second series of deviations (y's), and the "Σ xy" of the formula is the sum of these x y's, which, in this case, =56. The "n" of the formula is the number of cases, in this instance =7. Substituting the numerical values found we have

$$\text{Coefficient of correlation or "r"} = \frac{\Sigma xy}{n\sigma_1\sigma_2} = \frac{+56}{7\times 2\times 4} = +1.$$

Now let us imagine that the marks were quite otherwise related than as shown in the above table. Let us suppose that the boys who were strongest in

Arithmetic were weakest in Composition, and that those who were strongest in Composition were weakest in Arithmetic in such wise as is represented by the next table. It is still obvious that we have perfect correlation, but this time of a negative kind. After the preceding explanations, it will be quite clear from a mere inspection of the table how the coefficient of correlation, namely—1, is arrived at.

Name.	Marks for Arithmetic.	x's.	x s squared.	Marks for Composition.	y's.	y's squared.	xy's.
A. B.	7	+3	9	2	—6	36	—18
C. D.	6	+2	4	4	—4	16	—8
E. F.	5	+1	1	6	—2	4	—2
G. H.	4	0	0	8	0	0	
I. J.	3	—1	1	10	+2	4	—2
K. L.	2	—2	4	12	+4	16	—8
M. N.	1	—3	9	14	+6	36	—18
	Av.=4		Total=28	Av.=8		Total=112	Sum=—56
			Av.=4			Av.=16	
			$\sqrt{4}=2$			$\sqrt{16}=4$	

Coefficient of correlation or "r" $= \frac{\Sigma xy}{n\sigma_1\sigma_2} = \frac{-56}{7 \times 2 \times 4} = -1.$

But, of course, the relationships between the marks for Arithmetic and for Composition are never in actuality like those of either of the above tables. If they were usually of such forms as these, common sense would be adequate to discover the correlation without appeal to formulæ. But let me now give a case, still artificially simplified, but such as might be more likely to occur in actual practice.

I ask my reader to look first at the marks for Arithmetic and those for Composition in the next table and *guess* the correlation between them. It is

obviously positive; that is, the good boys in one subject are, generally speaking, good in another; but there are some irregularities. The correlation is not perfect, but it seems rather nearer to perfect correlation than to the absence of all correlation, which would be expressed by O. The table with the working out of the formula shown below gives us a definite value for this correlation, namely, +.75.

Name.	Marks for Arithmetic.	x's.	y's squared.	Marks for Composition.	xy's.	x's squared.	y's.
A. B.	7	+3	9	12	+4	16	+12
C. D.	6	+2	4	10	+2	4	+4
E. F.	5	+1	1	14	+6	36	+6
G. H.	4	0	0	8	0	0	0
I. J.	3	—1	1	2	—6	36	+6
K. L.	2	—2	4	4	—4	16	+8
M. N.	1	—3	9	6	—2	4	+6
	Av.=4		Total=28	Av.=8		Total=112	Sum=+42
			Av.=4			Av.=16	
			$\sqrt{4}=2$			$\sqrt{16}=4$	

Coefficient of correlation or "r" $= \frac{\Sigma xy}{n\sigma_1\sigma_2} = \frac{+42}{7\times 2\times 4} = +\cdot 75$

One word of caution—these tables are merely illustrative. The marks are not actual, and moreover, the formula is not generally suitable for application to series containing such a small number of cases as seven.

One further word—correlation coefficients are not reliable unless they are two or three times as large as the "probable error." In the following research the probable error has been found from the formula

$$\frac{\cdot 67449\ (1-r^2)}{\sqrt{n}}$$

where 'n,' as in the previous formula, is the number of cases in the series, and 'r' is the coefficient of correlation.

I.

INTRODUCTION.

Few educational questions have excited more general interest in recent years than that of the age at which children should commence their attendance at school. On the one side we have had the rule-of-three conclusion, felt rather than expressed as an inference, that the more teaching the child gets and the sooner he begins school, the more progress he is sure to make. On the other side we have had a strong feeling, now, I think, growing in intensity and range, that attendance at school in England begins too early and that there is an educational disadvantage in commencing so soon. I am not aware that any inquiry has been undertaken, the facts and conclusions of which would be logically acceptable to both parties in the dispute. An English educationist turns naturally to Germany and America to see if any scientific inquiry has been made on this question in either of those countries. So far as I know, no such research has been made. There are, however, causes for this in addition to those operative in England. In the first place, school atendance is compulsory in Germany at six years of age, not, as with us, at five; and there are no municipal infant schools or kin-

dergartens. In the United States, even in those most progressive educationally, six years is the usual compulsory school age. In some of the New England States, five is the lower limit; but both this 'five' and the previous 'six' represent regulations rather than facts; the average Grade I (about half a year's work below our Standard I.) in America being decidedly old. It is true that some of the States have kindergartens which are not compulsory, but attendance therein is not usual before five years of age. An admirable opportunity exists for measuring the advantages of kindergarten training in the States just now, since, at present, the Grade I children in many schools are about equally divided between those who have and those who have not received it. The application of proper psychological exercises would help to solve this important question, but the work has not yet been done.

In England, attendance is optional at three years of age, and does not become compulsory till five. A considerable number of children do not begin to attend until some months after five, but, after that age, the numbers entering are so small in most cases that they are hardly worth tabulating, But between three and five we have children entering at all ages, and it seemed to me that this elasticity gave an excellent opportunity for valuable research. Do those who enter early make more progress than those who enter late?

II.

AGE OF ENTRY AND SUBSEQUENT PROGRESS IN SENIOR SCHOOLS.

In Age of Entry we have an independent variable of great accuracy and of easy ascertainment. But how shall we measure school progress? Schools are divided into classes and standards, and, provided that we do not lump together the results from different schools, we shall find the school standards a most valuable aid in our inquiry. This statement needs some explanation. Schools differ so much in neighbourhood and in the standard of work demanded by their Head Teachers that it would not be wise straightway to assume that Standard I. or II. or any other standard in one school, indicated the same mental proficiency or attainments as in another school. But in any one school, particularly where great care is exercised in the classification of the children, it would be correct to suppose that the vast bulk of, say, Standard IV. children are more developed mentally than those of Standard III., Standard III. than Standard II., and so on. But what is meant by great care? On the one hand, that clever children are promoted though they may be young, and on the other hand, that very dull children are not put into classes where the work is beyond their power even if they make due effort.

There is a tendency in some cases to put a child up because, though not fit, he has already been 'through,' as it is called, a previous class or standard. The expert in school organization will see at once that that tendency works against the conclusion which I believe my figures will establish.

This short discussion will have already shown that progress cannot be considered apart from age; a boy of 10 in Standard VI. has obviously made more school progress than one of 14 in Standard VII. Somehow we must allow for both age and standard. There are numerous and complicated and somewhat elastic rules governing the question of classification by age and standard, and promotion from infants' departments to boys' and girls' departments. This is not the place for a detailed discussion of these rules. Their upshot is that a sort of ideal age for each standard emerges on which teachers and inspectors roughly base their judgments. Children are supposed to commence their Standard I. work at an average age of 6 years 6 months, their Standard II. work at 7 years 6 months, their Standard III. work at 8 years 6 months, and so on; thus they should commence the work of Standard VII. at 12 years 6 months. This is probably somewhat too high a standard for schools in poor or inferior neighbourhoods. Only one of the schools (all good ones) in which my investigations were made—a school long established in a good neighbourhood with a first-rate staff—attained it. But it was useful as a sort of guide which teachers well understood. Now, of course, some children reached these standards at earlier ages than those given above, and some later.

Very few were more than two years behind; so I took the pupil who was two years behind as being accredited with o progress marks, and those who were more than two years behind received a negative mark. The ages of the children were calculated in months, so that a boy two years and one month behind would receive a negative mark of one. If he were 1 year and 11 months behind he would of course receive a positive mark of one; if he were just right his mark would be 24; and if he were one year ahead of the normative age—a by no means unusual thing—he would receive a positive mark of 36. Take one case in illustration. Alfred Brown enters Standard IV. when he is 9 years 9 months old; the normative age is 9 years 6 months; Brown's progress mark is 24 — 3, that is 21.

We can obviously, with no difficulty except the laborious nature of the undertaking, assign a progress mark to every child in any school at any time. We have merely to take the age in years and months when he entered his present standard, and add to, or subtract from 24, the months by which he is in advance of, or behind, the normative age. It would be better to have a normative which was a little more normal, but obviously that will not affect our figures, which are used only for purposes of comparison within the same school. They are not valid for comparison between one school and another, since, as I have said above, the standards in one school differ from those in another. We have in England no Lehrpläne as in Germany, nor official courses of study as in America; the standards in different schools would not be really 'standards'

in the scientific sense, if we had; though there might be more uniformity between schools of the same type; for our Lehrpläne, if we ever have them again, will, I hope, unlike those of America, discriminate between schools of different types.

So far there is little difficulty; but when we set out to get the figures which we wish to compare with these progress marks, those, namely, relating to age of entry, we find that, in whatever school we choose, we have a number of children who did not commence their school life in that school, but somewhere else. If in private schools, it would be difficult, if not impossible, to get reliable statistics; and if in other municipal schools, much correspondence would have been involved; and, even if this difficulty had been surmounted, there would, probably, in many cases, have been awkward breaks in the school lives of such children that would have rendered their cases abnormal. One Head Master wrote to me thus—"The difficulty of obtaining reliable facts relating to children who have previously attended private or other elementary schools makes it necessary to ignore those who did not begin instruction in these buildings. The statistics concerning the latter are absolutely reliable." We, therefore, excluded every child who had at any time attended any other school.

In the first school for which the results of this inquiry are given, we tabulated the name of every child who was on the roll for August 1st, 1905—the first day of the educational year 1905 to 1906—with two exceptions, (1) of children who had at any time attended any other school, (2) of one boy

who was subsequently sent to a school for mentally defective children. The list appeared thus:

Name.	Age of Entry.	Standard on 1, 8, '05.	Age on 1, 8, '05.	Progress-mark.
Holloway, William,	3 yrs. 1 mth.	I.	8 yrs. 0 mths.	6
Mitchell, Richard,	3 yrs. 3 mths.	I.	7 yrs. 10 mths.	8
Friend, Victor,	3 yrs. 7 mths.	I.	8 yrs. 1 mth.	5
Shillings, Albert,	3 yrs. 5 mths.	II.	7 yrs. 6 mths.	24
.....	.....	...	.....	...
Moog, Philip,	5 yrs. 4 mths.	V.	10 yrs. 10 mths.	20
.....	.....	...	.....	...

If now we collect the progress marks of all children who entered between 3 and 3½ years of age, and of all those who entered between 3½ and 4, and so on, we ought to see at a glance whether there is any marked correlation between the age of entry and subsequent progress in school; provided, of course, that the influence of age of entry is not obscured by that of any other relevant factor than the increased length of school life at any given subsequent age. Whether there is another factor depressing or raising the position of those who entered early as compared with those who entered late is a question I will discuss subsequently. For the present, I shall suppose that the groups entering at different ages between 3 and 5 are of approximately equal natural ability *within the same school.* The last limitation is important, for I am well aware that, in London, the age of entry in some suburban schools is very late, and it would be unfair to compare these children with the early groups of poor neighbourhoods. This school for which the figures are now to be given, was rather a new one; consequently, we were compelled to cross out a very large number of children who had been to other schools;

but I selected it because the Head Master, I knew, took very great care in classification and neither under nor over promoted. The progress marks are indeed very satisfactory for a new school containing this type of child. I ought perhaps to mention that the classification was not made in view of this inquiry, which was not begun until November, four months after the school had been organized for the educational year.

The results follow:

TABLE I.

School "O. K." Boys.

Age of entry.	No. of boys.	Average progress mark per boy.	M. V.*
3—3½	23	14.2	6.2
3½—4	15	15.3	5.9
4—4½	17	14.1	5.8
4½—5	18	15.0	6.3
5—5½	23	16.3	5.7

Boys who entered after 5½ years, very few in number, were excluded; they were boys who were feeble or in ill-health: the large number entering after 5 is due, not to the character of the neighbourhood but, partly at least, to the comparative lack of school accommodation before this school was opened.

My reader will see how very close these groups are in average progress if he remembers that each unit stands for a month only. Thus the 23 boys who began school from 3 to 3½ years of age are 9.8 months on the average behind the ideal standard

* M. V. (Mean Variation) is the average deviation of the individual progress marks from the average of the group. The highest mean variation differs from the lowest only by .6 of a month.

for their ages; the next group is 8.7 months behind, and so on. But our interest just now is in the comparative results; and it is very hard to believe that, in this school, the age of entry has been an operative factor at all so far as the child's subsequent progress is concerned.

This method of grouped averages, though excellent for obtaining a general notion of correlation, is not adequate to show small amounts of correlation. This has, however, been worked out from the individual cases by the Pearson formula, and gives a coefficient of +.07 with a probable error of .07. One cannot draw an inference either way from this result, except that no correlation exists; one may, however, remember that, as we are correlating *age of entry* and *progress marks,* a positive coefficient is against early entry.

I have given the results of the above boys' school first, because the numbers were small and easy to manipulate; it was not, however, the one in which my first investigation was made. That was also a boys' school, one situated in a good neighbourhood, long established and popular, though not very large.

The inquiry was commenced in June, 1905. All the boys in the school were placed on our list, except those who had previously attended any other school, public or private. Every boy included, therefore, had attended the corresponding infants' department, the very few who had *commenced* their school attendance at a very late age in the boys' department itself being excluded.

As before, certain particulars were supplied for each pupil, and were set out as follows:

Name.	Age of admission to Infants' dept.	Present standard.	Age on 30, 6, '05.
Beamish, Lawrence,	3 yrs. 2 mths.	II.	8 yrs. 8 mths.
Piper, Harold,	3 yrs. 3 mths.	II.	8 yrs. 1 mth.
.....	.....	...	.....
Ward, Charles,	5 yrs. 5 mths.	VII.	14 yrs. 3 mths.

Total, 195 boys.

Each boy then received a progress mark calculated in the way previously explained. The pupils had worked for 11 months in their present standards, and this, of course, had to be allowed for. Thus 11 months were deducted from the present age of each pupil if, as was almost invariably the case, he had been placed in his present standard at the commencement of the current educational year.

I propose to present first the final summary of the results..

TABLE II.

School "L." Boys.

Age of entry.	No. of children.	Average progress mark per boy.	M. V.
3—3½	38	23.4	5.3
3½—4	40	21.9	7.8
4—4½	47	23.0	8.6
4½—5	28	22.5	4.3
5—5½	39	22.1	7.6

It will help us clearly to comprehend the great similarity between the progress of these five groups if we remember that this table means that the first group (those that enter from 3 to 3½ years of age) are, on the average, .6 months below the normative standard for their age: the second group, on the average, 2.1 months below: the third group, 1 month below: the fourth, 1.5 months below: and the fifth,

1.9 months below. The differences in the progress of the various groups are extremely small. It is not, however, unreasonable to suggest that the earlier entering groups may show more advance in the lower standards than those entering later, and that this difference gradually disappears; or perhaps, as would be necessary if the average progress mark for the various groups of all standards together remains approximately the same, that a reverse difference appears in the upper standards. The following classification will help us to test this supposition.

TABLE III.

School "L." Boys.

Age of entry.	No. of boys.	Standard.	Average progress mark to nearest unit.
3—3½	7	II.	26
3½—4	3	II.	21
4—4½	8	II.	19
4½—5	5	II.	22
5—5½	6	II.	22
3—3½	7	III.	27
3½—4	7	III.	24
4—4½	8	III.	25
4½—5	6	III.	21
5—5½	7	III.	25
3—3½	8	IV.	22
3½—4	6	IV.	24
4—4½	7	IV.	23
4½—5	5	IV.	23
5—5½	8	IV.	20
3—3½	4	V.	23
3½—4	12	V.	20
4—4½	10	V.	27
4½—5	5	V.	27
5—5½	3	V.	32
3—3½	7	VI.	25
3½—4	6	VI.	18
4—4½	6	VI.	17
4½—5	3	VI.	22
5—5½	5	VI.	14
3—3½	5	VII.	15
3½—4	7	VII.	26
4—4½	4	VII.	25
4½—5	8	VII.	18
5—5½	7	VII.	24

A comparison of the progress marks of the early entering groups with those of the later entering groups in each standard separately (the school contained no Standard I. children) will show that this supposition is untenable. Teachers will note the low progress marks of Standard VI., but will at once understand when I tell them that there were two divisions of Standard VII.

But a still further issue may be legitimately raised. It may be fairly urged that the early groups, though not in a higher standard for their age than the groups who entered late, are yet decidedly superior within those standards. To test this question would, under ordinary circumstances, have been a task of extreme difficulty; but the Head Master of this school was one who kept the records of his terminal examinations with exceptional care and conducted his tests with exceptional thoroughness. He had, moreover, in each standard, given 25 marks for each subject, so that there was plenty of room for variation; and, further, it was easily possible to find for every boy an average mark per subject. It would be quite impossible without enormously swelling the contents of this monograph, to give all the exercises set. Suffice it to say that they ranged from Reading, Writing, Spelling, Arithmetic and Drawing in Standard II. to Reading, Spelling, Composition, Arithmetic (RuleSums and Problems) Mental Arithmetic, Arithmetical Computation, Algebra, and Drawing in Standard VII. The examination had been conducted some months before and was not undertaken for the purpose, or with the knowledge, of this approaching inquiry.

I append the final summary of the marks gained:

TABLE IV.

School "L." Boys.

Age of entry.	No. of children.	Average mark per boy per subject.
3—3½	38	21.5
3½—4	40	21.5
4—4½	47	20.5
4½—5	28	21.9
5—5½	39	21.2

It is, I think, fair to conclude from this table that the children had not been classified on an age basis, but on an ability basis; for if old children, entering school late, had been put forward simply because they were old, we should have discovered it by a rapidly decreasing examination mark for the late entering groups. The outstanding result is the extraordinary closeness of the progress and class proficiency of these five groups. These results give no countenance to the view that early entry into school results, later on, in greater proficiency and progress. I was not prepared for such a result, for I certainly expected that the group which entered after 5 would show an appreciable falling off, either in their progress in the standards or in their comparative proficiency within their standards.

That these tabulated results are not adventitious ones may be shown in a variety of ways, of which the subjoined analysis is one:

TABLE V.

School "L." Boys.

Age of entry.	Standard.	No. of boys.	Average mark per boy per subject.
3—3½	II.	7	22.1
	III.	7	22.0
	IV.	8	20.5
	V.	4	21.0
	VI.	7	21.8
	VII.	5	21.3
3½—4	II.	3	22.3
	III.	7	22.0
	IV.	6	21.0
	V.	12	23.0
	VI.	6	21.7
	VII.	6	21.0
4—4½	II.	8	17.3
	III.	8	22.2
	IV.	7	20.4
	V.	10	20.2
	VI.	6	20.8
	VII.	8	22.2
4½—5	II.	5	21.6
	III.	6	22.3
	IV.	5	21.1
	V.	5	22.6
	VI.	3	20.6
	VII.	4	22.3
5—5½	II.	6	21.1
	III.	7	21.6
	IV.	8	20.8
	V.	3	20.8
	VI.	5	19.7
	VII.	10	22.0

The earliest entering groups have a slightly higher mark in Standard II. than the later entering groups: in III. the mark is practically identical for all ages of entry: in IV. it is practically identical throughout: in V. the 3½—4 and 4½—5 groups are the best: in VI. the early entering groups are better than the later ones: in VII. VIII. the later entering groups are better than the earlier entering ones. Our

only conclusion can be that early or late entry is an unimportant factor within each class.

We have now a mark for each child called the *progress* mark, which depends on the standard he has reached at his present age: we have also a *terminal examination* mark, which shows how he stands within that standard. We can see, by referring to our tables, that the group entering from 3—3½ years have a progress mark of 23.4 with an examination mark of 21.5, and so on.

It will be of service if I give the two sets of results side by side.

TABLE VI.

School "L." Boys.

Age of entry.	No. of boys.	Average progress mark.	Average examination mark.
3—3½	38	23.4	21.5
3½—4	40	21.9	21.5
4—4½	47	23.0	20.5
4½—5	28	22.5	21.9
5—5½	39	22.1	21.2

Considering both these values it will be seen that the 3 to 3½ group and the 4½ to 5 group are the most proficient, while the three remaining groups are practically identical.

But, after all, these are results for one school only, and one well situated in a good neighbourhood. We have, however, to remember that they correspond, so far as the relative progress of the different groups within the same school is concerned, with those of the former school "O. K.", which was situated in a neighborhood very different from that of the school just referred to.

Perhaps I may say a word here as to the lumping together of results which I deprecated in the explanation of my method. If we had put these two schools together let us see what would have happened. I pass over, for a moment, the consideration that the "standards" of work were not likely to be the same; they did, as a fact, closely approximate.

TABLE VII.

	School "O. K."		School "L."	
Age of entry.	No. of boys.	Average progress mark.	No. of boys.	Average progress mark.
3—3½	23	14.2	38	23.4
3½—4	15	15.3	40	21.9
4—4½	17	14.1	47	23.0
4½—5	18	15.0	28	22.5
5—5½	23	16.3	39	22.1

Obviously the results from the second school, with its larger numbers and higher progress marks, would, if we had combined the results, have swamped those from the first school. Whereas, by taking them separately, we find that quite a different rate of progress per age is, nevertheless, accompanied by the same steady resemblance between the groups entering early and those entering late.

One word to teachers. The school "O. K." was just as good a school as School "L.," its lower progress marks depended (1) on the fact that it was relatively new, (2) on the fact that it was in a different neighbourhood and was attended by children of different birth and social environment. (On this latter question I hope to publish some definite work in the near future.)

I now pass from these schools to another, which was nearer in social type to School "L.," but shared

with School "O. K." the disadvantage of being somewhat new. Teachers will understand without argument that, in a new school, if anywhere, the ages of the children, in the lower standards at least, are apt to be high; and progress, measured by age and standard, is apt to be low. But, as before, we are concerned, not with the general progress of the school, but with the comparative progress of the children entering early and those entering late. As on the previous occasion, every child was excluded whose whole school life was not passed within the school itself. The cordial co-operation of the three head teachers—the Infants' Mistress, the Girls' Mistress, and the Head Master of the Boys' School working together—made the investigation easy and rapid. The name of every child on the roll on the 31st of July preceding the investigation (which took place some months later) was placed on a list, together with the following particulars collected from the school registers. It was not known beforehand that such an investigation would be made.

Name.	Present standard.	Age on 31. 7. '05.	Age on entering school.
Buerley, Alfred,	VII.	12 yrs. 3 mths.	4 yrs. 7 mths.
Cox, Sidney,	VII.	13 yrs. 7 mths.	5 yrs. 1 mth.
.....	....	.....	.....
Swift, Percy,	I.	8 yrs. 4 mths.	4 yrs. 5 mths.

Three boys were excluded who had been absent through illness for very long periods. The Head Teacher thought it unfair to put these in, and I concurred in his judgment. Then to every boy was allotted a progress mark in the way already explained. And, finally, the results were tabulated as before.

TABLE VIII.

School "G." Boys.

Age of entry.	No. of children.	Average progress mark.	M. V.
3—3½	12	20.6	8.0
3½—4	7	19.4	9.3
4—4½	8	21.6	7.6
4½—5	16	19.0	6.4
5—5½	12	15.4	5.8
5½—6	2	17.0	4.0

It cannot be denied that there is a drop in the last two groups, of which the figures of the first four groups give no indication; so I thought it well in this case, as the numbers were small, to arrange the children in a list showing

Name.	Age of entry in months.	Progress marks.
R. R.	36	29
.....	..	..
.....	..	..
C. H.	43	3
.....	..	..
.....	..	..
C. R.	61	21
H. S.	63	23
P. R.	67	21
S. S.	67	13

and then to work out the correlation from the individual results. The table above is, of course, a summary of such a list, but it deals with averages only. If the correlation between age of entry and progress is worked out by the Pearson formula from the individual cases, we find that it amounts to —.1727 with a "probable error" of .09. Considering the size of the probable error in its relation to the correlation coefficient, our only safe conclusion is the absence of correlation. But we

have the further consideration which I attempted to deal with in School "L.," namely, is the classification itself a proper one, or is it based on age apart from ability? Here again, the examinations of the Head Teachers were of very great service. Those of the Head Master were indeed conducted with a quite unusual thoroughness and his questions were very searching. In the upper standards it was possible to obtain individual marks for Reading, Writing, Spelling, Composition, English Grammar, Arithmetic, Algebra, Geography and History; and in the lower standards for Reading, Writing, Spelling, Composition and Arithmetic. The maximum mark for each subject was 10, so that it was quite easy to obtain an average terminal examination mark for each subject for each boy. This was done and the marks collected and summarized.

TABLE IX.

School "G." Boys.

Age of entry.	No. of pupils.	Average examination mark per subject per child.
3—3½	12	7.5
3½—4	7	7.2
4—4½	8	7.9
4½—5	16	7.9
5—5½	12	7.7

It is fairly obvious that the later entering groups have not been classified above their powers because of their age, as there is some tendency to do in a new school. On the contrary, the two groups which entered earliest seem to show a slight inferiority within their standards, and the later entering pupils might, in comparison with the others, have been put a little higher without danger.

Let us turn now to the Girls' Department of the same school. It will be enough here if I give the summarized results. One child, whose attendance had been interrupted by a very long illness, was omitted.

TABLE X.

School "G." Girls.

Age of entry.	No. of children.	Average progress mark.	M. V.
3—3½	7	19.0	9.4
3½—4	4	20.7	2.4
4—4½	15	20.8	7.1
4½—5	10	20.5	6.3
5—5½	25	19.3	5.0

There seems a slight falling off of those who enter after 5 years of age; but even then they are rather more forward for their age than those who enter at 3 to 3½ years; but, in any case, (our units are months, be it remembered) the differences are exceedingly slight. Worked out from individual cases by the Pearson formula, the correlation between age of entry and school progress is found to be—.0116; and this is well within the limit of the "probable error," which amounts to .08.

But again we have to ask ourselves if the children are properly classified, and fortunately there is again at our service an excellent set of school records. In the upper standards, individual marks had been given for Reading, Writing, Spelling, Composition, Written Arithmetic, Mental Arithmetic, Elementary Science, Needlework, Geography, History, and English Grammar; and even in the lowest standards, in Reading, Writing, Spelling and Arithmetic. The maximum mark for each subject

was 10, so that it was quite easy to get an average mark per subject for each child as before. Summarizing these we obtained the following table:

TABLE XI.

School "G." Girls.

Age of entry.	No. of children.	Average progress mark.	Average examination mark.
3—3½	7	19.0	7.9
3½—4	4	20.7	8.2
4—4½	15	20.8	7.0
4½—5	10	20.5	7.8
5—5½	25	19.3	8.2

One group is decidedly weaker, and it looks as if some slight over-promotion had taken place, since this group is furthest forward for its age. But the striking thing is the almost exact resemblance between the early and late entering groups; and the general results are a testimonial to the good classification of the school and an indication of the non-importance of earliness or lateness of entry.

Let me now deal with a Boys' school of different type, long established, and in a poor neighborhood—though not itself attended by very poor children—with a strong Head Master, but a staff gradually weakening by promotion and transfer. The population, like that of School "L," is a stable one, and the majority of the children had passed their whole school life within the walls of the one school. We excluded all who had entered later than 5 years 6 months, and two children who had entered before 3 years of age.

I do not propose to recount the method adopted to make out the preliminary schedules, nor how the progress marks were awarded; my reader will, by

now, be quite clear on these points. Nor shall I again relate how the classification was checked by means of the Master's Terminal Examinations. Of the latter I thought so highly that, when acting as Inspector to the school, I modified my own assessments of his staff, against my own opinion, in the direction indicated by his examinations. The labour and care he bestowed upon them were very great. Even in Standard I. each boy received an individual mark in Reading, Writing, Spelling, Arithmetic, English, Geography, Knowledge of Objects and Drawing. In Standard II., in addition, a mark was given for Knowledge of Historical Tales and for Composition. In Standard V., Elementary Chemistry and Botany were added. The mark for each subject after Standard V. was 50 instead of 10; but, as in preceding cases, we found an average mark per subject for each child on the basis of 10 as a maximum. I was careful to note that the adoption of a higher maximum in the upper standards had not involved either a higher or lower percentage of possible marks than in the standards with a lower maximum mark per subject; so that no statistical difficulties occurred in adding together the average marks for children from different standards.

I propose to give the summarized table only.

TABLE XII.
School "S." Boys.

Age of entry.	No. of boys.	Average progress mark per child.	Average terminal examination mark per child per subject.
3—3½	55	19.8	6.2
3½—4	21	16.9	6.1
4—4½	33	19.6	6.6
4½—5	26	17.0	6.6
5—5½	35	18.0	6.5

That the children are not over-promoted on account of their age is shown by the fact that the late entering groups are higher up in their standards than those entering earlier; but then, of course, they are not quite so advanced for their ages. The children entering from 3½ to 4 are decidedly the weakest group; they are not so far forward in the school, nor do they stand as well within their classes as the other groups. The Head Master and myself went carefully through the group, but could find no reason except comparative inferiority in natural endowments. This group of children contained a rather larger number of those who came from 'poor' homes than those of the other groups, and the bearing of this factor on the results I hope to consider presently. I need hardly say that by 'poor' home I mean something not necessarily connected with a small family income.

At the same time as this investigation was made in the Boys' Department of School "S," a similar inquiry was proceeding in the Girls' Department. The Head Mistress was new and the previous Mistress had spent about three or four years only in the School. The latter had, however, very greatly improved an organization which, a few years before, had brought a reproof from His Majesty's Inspector on account of the high ages of many children in the lower classes. I do not, therefore, feel so much confidence in the results as in the other cases I have given, for, as teachers and organizers well know, it takes several years to set right an unsatisfactory organization; even the process of setting it right often means setting it wrong in an-

other way; for to make the average ages appear satisfactory for the different standards, it is the very bright and willing child who is often put unduly forward, whilst the older and heavier-witted child may be left behind. However, as I intend to give the results for *every* school in which the inquiry was made, I present below those of Girls' School S.

TABLE XIII.

School "S." Girls.

Age of entry.	No. of children.	Average progress mark per child.	Average terminal examination mark per child per subject.
3—3½	61	19.4	7.6
3½—4	46	17.9	7.5
4—4½	45	20.8	7.4
4½—5	31	16.3	7.3
5—5½	41	13.7	7.2

There is certainly an indication afforded by these averages that an entrance age later than 4½ or 5 years has been followed by some retardation in subsequent progress; the great similarity between the examination marks of the groups entering at different ages shows the *present* classification to be a good one.

The next results which I present to the reader are those from a school of a rather different type from any of those heretofore given. This is a large and well-established girls' school, pleasantly situated in a good neighbourhood. It contains a very small number of children from 'poor' homes. It is very efficient educationally, is called a Higher Grade School, and deserves the name. A very considerable number of children come after 5 years of age, and a fair number do not commence their

school attendance till after they have reached 6 years of age. The infants' department had been known for years as one in which "Kindergarten" methods had been in use; in the opinion of the teachers in the girls' department, their use had, indeed, been unduly prolonged, that is, continued after the children were fit for definite preparatory teaching. I will speak of the influence of the *form* of early instruction on subsequent school progress in a later section.

I propose to give in the summary below all children on the roll on the 1st of August, 1905, excluding all those who had at any time attended any other school, public or private.

TABLE XIV.

School "R." Girls.

Age of entry.	No. of girls.	Average progress mark per child.
3—3½	32	17.9
3½—4	26	13.6
4—4½	30	13.7
4½—5	63	19.7
5—5½	64	16.4
5½—6	13	11.7
6—6½	9	15.2
6½—7	4	21.0

In the first place I would remind teachers who think the progress mark somewhat low for a school of this kind that there were causes other (if that was a cause) than the unusual prolongation of "Kindergarten" teaching in the infants' department. As a Higher Grade School, this school had been working for years up to a curriculum which was very heavy in the upper classes, and which any child who was much below the average could not

hope to undertake. The range of work, if not the standard required, was necessarily high. I very much regret that I did not think of getting the terminal examination marks until too late. It is certainly impossible to conclude from this table of averages that there is any advantage in commencing school before 5 years of age; indeed, if we put together all children coming in between 3 and 4 years of age, and all those coming in between 4 and 5, we find the average progress mark of the former to be 16.0 and of the latter to be 17.7. I do not consider my inquiry to be of so much service after the entering age of 5½ years is reached. The parents of the children attending these schools are law-abiding persons and would not keep their children at home much after five years without adequate reasons, instruction given at home being one of these. Indeed after 5½, there is an element of selection coming in which I have not allowed for, so I lay no stress on the result. It does appear, however, that the next two groups, namely, those entering from 5 to 6 years are not much behind the groups entering from 3 to 4; their average progress mark is 15.7. The next group is, perhaps, too small and the circumstances of the children too special for us to feel much confidence in our conclusions. Still it may be interesting to note that the children entering from 6 to 7 years of age have a progress mark of 17.0.

It is obvious that, if there is any advantage in early entry in this school, it is not apparent from the average results. Let us, therefore, as usual in cases of doubt, apply the formula of correlation.

The result is found to be —.01003, which is conclusive as to the unimportance of the age of entry within the limits dealt with.

The next results presented will be those from a Boys' School situated in a poor neighbourhood, and attended by children of a rather poorer type, perhaps, than those of School "O. K." It is not necessary to give again an account of the method pursued in the investigation. We dealt as before with every child on the roll on a given date, excluding those who had at any time attended any other school.

I need hardly say that the school had not been organized in any expectation of this inquiry. Nor, in this case, had there been any expectation of it, would there have been any attempt whatever to make any alteration in consequence. The Head Master's records of progress had been the subject of encomiastic comment from His Majesty's Inspector, and he was known by the Inspectors of the Local Authority as an exact and careful judge of the quality of the work of his school.

I give first the general results expressed in averages.

TABLE XV.

School "S. A." Boys.

Age of commencement of school life.	No. of boys.	Average progress mark.
3—3½	62	15.7
3½—4	35	11.7
4—4½	35	16.2
4½—5	25	9.8
5—5½	17	5.0

There is no doubt at all that we have now found a rapid falling-away after the entrance age of 4½

is passed. It seems a little too sudden, perhaps, to be dependent merely on five or six months' less tuition; still we cannot deny that it is there. Something of this sort, though more gradual, I had expected to find before. As a matter of fact, it was, as my reader is by this time aware, an almost unique result. The 17 boys who had entered from 5—5½ years had an average progress mark of 5 only, an extraordinarily low figure. It means that these boys were, on the average, 19 months behind the position required by normative progress. Need I say that, if the standards are to be alike for all schools, the normative is pitched too high for schools in such neighbourhoods as this? But we are now, of course, dealing with comparative groups within the same school, and, whatever the normative may be, our table of comparisons is not affected. These children were emphatically a non-progressive group, and they came to school late. Perhaps the organization of the boys' school was at fault. Perhaps these children were put in lower classes than they should have been. I have already spoken of the care with which the school examinations were conducted and of the excellence with which the school records were kept. All subjects of examination had received 10 as a maximum mark, so that there was no difficulty in obtaining an average mark per boy per subject, and this, as before, is called his terminal examination mark. The summarized results will, I think, make it clear that these boys had not been "under-promoted."

TABLE XVI.

School "S. A." Boys.

Age of entry.	No. of boys.	Average terminal examination mark.
3—3½	62	6.1
3½—4	34*	6.8
4—4½	35	6.5
4½—5	25	6.3
5—5½	17	6.3

The late-entering groups seemed not only to have made poor progress but were rather below the average in their classes. Our next step was to go individually through the cases of every boy in the group entering from 5 to 5½ years of age. Six of the boys were marked physically feeble or underfed, which was rather a large number out of a total of 17. Still, even eliminating these, the mark was very low. At this juncture, it was thought it would be well to trace the school career of *every* child who had entered the Senior department from the Infants' school for a *number of years* past, and to assess their progress as measured by their age and present standard or the last standard they reached before they left. This was, of course, a task of extreme laboriousness and occupied several weeks. Nor would it have been possible at all had not this Head Teacher been in the habit, for years, of entering in certain appropriate columns in his Admission Register, the date at which successive standards were reached by his pupils, together with certain particulars as to the cause of leaving. *En passant,* may I say that a continuation of these records in the direction of ascertaining what becomes of

*One boy shown in this group in the preceding table was absent from the terminal examinations through illness.

school children *after* they leave day schools is, in my judgment, not only of practical importance, but full of value for a real science of sociology? However, our present inquiry is fully provided for by the accurate and extensive records already kept in this department. The school progress of every boy who had entered from the Infants' department from July, 1898, to July, 1905, inclusive, excluding as before, all children who had ever attended any other school, was traced from beginning to end. We found out, if the child was no longer present in the school, when and why he left, how old he was when he left, at what age he entered the Boys' department, what standard he had reached when he left, and, of course, at what age he entered the Infants' department.

Summarising as before we find:—

TABLE XVII.

School "S. A." Boys.

Age of entry.	No. of boys.	Average progress mark.
3—3½	102	15.4
3½—4	60	11.5
4—4½	50	13.6
4½—5	42	10.9
5—5½	26	4.4

The evidence from the preceding table is strikingly corroborated; there is no doubt at all that, after an entrance age of 4½, there is a drop, and a very considerable one, in the progress of the children who come later; the group entering from 5 to 5½ years are three-fourths of a year behind, on the average, in the highest standard reached either now or when they left the school. How were we to ex-

plain this striking difference between the results from this and from other schools? A closer analysis enabled us to settle the question. We again considered the 5 to 5½ group dealt with in the first table given for this school, and found out that all the children were so old when they entered the Boys' department that their promotion from the Infants' school was compulsory under the age clause; and further—a much more serious matter—that only 4 out of the 17 had ever been placed in the Standard I. class in the Infants' department. All the rest had to do the work of Standard I. for the first time in the Boys' department. No child had been less than 2 years 4 months in the Infants' school—their average was 2 years 8 months; so there had been plenty of time, considering the age at which they entered, to have done the work of Standard I. Why had this not been done? A search through the Infants' school records showed that, for some years, the top of the school had been congested, and the Head Mistress had been told that she must keep the numbers down in certain rooms at each yearly promotion. Therefore, the rooms containing the higher classes would be as full as she was permitted to make them with the earlier entering children who came up from the lower classes. Older children, entering afterwards, would, perforce, be put down in lower classes among much younger children, and were put forward only when these young ones were put forward; they, therefore, passed out of the Infants' school old and backward, and never wholly caught up the loss they had sustained. This is not the

place to discuss the question as to the absolute necessity for the above-sketched organization of the Infants' department; it was certainly one which was natural enough under the circumstances and fully accounts for the unusual results obtained from this Boys' department. This, of course, is a school in a poor neighbourhood and, at first sight, we might think that fact has affected our results. We may note that between 20 per cent. and 30 per cent. of the *late* entering group came from specially "poor" homes (those who enter late are usually supposed to come from good homes, by the way), but that issue must wait for the present. I am by no means unmindful of its importance.

Then, I think we may fairly conclude that, so far as intellectual results are concerned, and in so far as these are measured by school progress, we can claim no advantage for early entry into school; that is, children who enter at 3 years of age progress neither more rapidly nor more decisively than those who enter at 5. I do not consider that the evidence is satisfactory for entrance ages beyond 5 years, as the numbers are small, and the children who begin so late (after the compulsory age) are often unusual in health or in home circumstances. I conclude, however, with confidence that, as far as *subsequent* school progress is concerned, it is of trifling importance, if not absolutely unimportant, whether a child begins school at 3 or at 5 years of age.

III.

AGE OF ENTRY AND PROGRESS IN INFANTS' DEPARTMENTS.

But it might, perhaps, be contended that, though the difference in the progress of different groups disappears after the senior school is reached, there is yet a perceptible difference if we measure progress in the Infants' department itself. The Infants' department of School "O. K." was well known to me as a thoroughly efficient school, in which the Head Mistress classified carefully on the basis of the children's natural capacity, as far as possible. It is, of course, not wholly possible. If the work of the school is arranged in proper sequence and duly graded, attainments must also count as a factor in promotion. We scheduled the name of every child who would be seven years of age before the end of the current educational year, excluding, as before, all those who had at any time attended any other school. Then we considered their class or standard in relation to the age at which they entered it, and gave each child a progress mark on the basis before described.

TABLE XVIII.

School "O. K." Infants.

Age of entry.	No. of children.	Average progress mark per child.	M. V.
3—3½	14	19.1	3.0
3½—4	12	19.0	2.4
4—4½	6	19.0	2.3
4½—5	13	20.2	3.4
5—5½	4	20.0	3.0

From these figures, if we are dealing with groups of approximately equal ability, we can only conclude that there may be a slight educational disadvantage in early attendance at school.

But a still further question might be raised. It may be that the advantage of early attendance is present, but is too slight to make a difference to the class or standard in which the child is placed. Closer inquiry may discover that the children who commence school early are somewhat superior to others of the same age, though they may be in the same classes. I, myself, expected this to be the case. It is the ordinary opinion of Head Teachers in Infant schools, and I shared that opinion.

To test this point all the children who would be seven years of age at the end of the current educational year were given a terminal examination with which special care was taken. It was conducted jointly by the Head Teachers of the Boys' and Infants' departments, who set the exercises and marked the work done. Teachers who read this paper will, naturally and rightly, wish to know what exercises were given, and the standard of marking that was adopted. I give these in the teachers' own words. I do not claim that these tests are always the best psychologically that could be used; but they certainly give an adequate estimate of progress as it is measured in good schools. The work was done in November, eight months before the end of the current educational year, and was what is known as the Christmas terminal examination.

I need, perhaps, hardly say that the questions

were chosen so that the very best pupils in each subject could get the maximum mark and the worst could just do something.

Reading. The children read from Collins' Attractive Readers. Eight marks were given for correct reading and two additional ones for expressive reading. Two marks were taken off for errors and omissions, and one for words indistinctly pronounced.

Transcription. The children copied from Collins' Attractive Reader, page 22, paragraph 1. A maximum of 10 marks was allowed, one being subtracted for each letter wrongly formed.

Spelling. The following ten words were dictated —bird, said, eggs, which, foot, arms, home, they, poor, meat. One mark was given for each word correctly spelt.

English Composition. A large picture of an ostrich was hung before the children, and they were asked to write down anything they saw in it or thought about it. Thirty-five minutes were allowed for this. Every intelligible statement received a mark up to a maximum of 10, irrespective of spelling, punctuation or construction.

Written Arithmetic. Four sets of sums were given, Set A, Set B, Set C, Set D. Two marks were given for each correct answer and two for clearness of arrangement generally. One set is given below as a sample:

Set A.—1. Add together 5, 13, 42, 20.
2. Add together 10, 8, 33, 24.
3. 8+18+30+13.
4. From 87 take 37.

Mental Arithmetic. Four problems were asked with one step in each and two problems were asked with two steps in each. Correct answers to the former carried one mark and to the latter two marks.

Drawing (for boys). A free-hand exercise was placed on the blackboard; it was a diagrammatic drawing of a straw hat (boater). An exercise in ruler work was also given. Five marks as a maximum were given to each exercise.

Needlework (for girls). A strip of calico, 5 inches by 2½ inches, was hemmed in two colors showing a join. The maximum mark was 10.

The results were tabulated as follows:

TABLE XIX.

School "O. K." Infants.

Name.	Age in yrs. and mths. on 31, 7, '06.	Reading.	Writing.	Spelling.	Composition.	Arithmetic (rules).	Mental Arithmetic (problems).	Drawing (for boys).	Needlework (for girls).	Average mark.
Nunn, Wm.,	7.3	4	3	3	1	0	6	4	..	3.0
Pavey, Wm.,	7.6	10	8	9	9	10	6	7	..	8.4

and so on.

Then they were collected into five groups as before, according to the age at which the children commenced their school life.

TABLE XX.

School "O. K." Infants.

Age of entry.	No. of children.	Average mark per subject. Maximum 10.	M. V.	Average age on 31, 7, '06.
3—3½	14	6.3	1.6	7 yrs. 11 mths.
3½—4	12	6.8	1.6	7 yrs. 11 mths.
4—4½	6	7.2	1.9	7 yrs. 11 mths.
4½—5	13	6.0	1.6	7 yrs. 9 mths.
5—5½	4	7.1	.8	7 yrs. 10 mths.

It is, I think, difficult to resist the conclusion that no advantage can be claimed for early entry. We see on this method of classification that the children who entered school later are younger for the same standard of attainment than those who came earlier.

Referring once more to Table XX., we see that the last group consists of unusually proficient children; the variation from the average mark is only .8. I am disinclined to draw any positive conclusion from their high marks except that of unusual mental ability, though, of course, we are entitled to say that their late entry has not prevented them from attaining the highest standard of proficiency. But it may be worth while to test our assumption that, within this group, namely, that of children from 7 to 8 years of age and upwards, the age of the child is an important factor in the result of the work. I therefore propose to arrange the children in order of age and correlate the age in months with the marks obtained for this terminal examination:

The list was arranged thus:

Name.	Age on 31, 7, '06.	Average mark per subject.
Nunn, Wm.,	7 yrs. 3 mths.	3.0
Albrecht, F.,	7 yrs. 3 mths.	8.1
.....	.....	...
.....	.....	...
Simmons, R.,	8 yrs. 5 mths.	5.0

The classified results follow:

TABLE XXI.

School "O. K." Infants.

Age on 31. 7. '06.	No. of children.	Average mark per subject.
7 yrs. 3 mths. to 7 yrs. 5 mths.	6	4.9
7 yrs. 5 mths. to 7 yrs. 7 mths.	6	5.4
7 yrs. 7 mths. to 7 yrs. 9 mths.	8	6.3
7 yrs. 9 mths. to 7 yrs. 11 mths.	6	7.3
7 yrs. 11 mths. to 8 yrs. 1 mth.	8	7.2
8 yrs. 1 mth. to 8 yrs. 2 mths.	7	7.8
8 yrs. 2 mths. to 8 yrs. 5 mths.	8	6.9

There is no doubt that in this school the age of the children at the time of the examination has affected the result. The correlation between the age in months and the average mark per subject, calculated, not from the grouped results, but from the individual cases, on the Pearson formula, has a positive coefficient of .326, with a "probable error" of .09.

On the basis of these marks we can push our inquiry a step further. It is not unusual to argue that, though an early education in an infant school does not secure an earlier acquisition of Reading, Writing and Numerical Computation, yet such a training is really valuable and shows itself in such things as the solution of arithmetical problems and English Composition, not only in earlier acquisition, but throughout the whole school career. I was myself of this opinion; and, at an early stage in my research, thought I had demonstrated it to be the case, so far as Infant schools were concerned. But there is, of course, a further point on which we have to be clear. We want to know whether the lower classes did any work indirectly or directly preparatory to English Composition and the

solution of arithmetical problems. If they did not, it would perhaps be wrong to suppose that our method of inquiry would give us relevant results. It might, of course, be argued that the mere presence in school under a good teacher would, however indirectly, increase the "intelligence" of the child and so affect his work in these things. But in this school we need not rely wholly on indirect influence, since composition in both an oral and a written form had been done in classes previous to those tested, and little problems in number had been given also. Moreover, mental arithmetic with written answers had been done on several previous occasions, so that the children were well accustomed to the exercise.

The tabulation of results gives no support to the view that an early commencement means superior work at a given age, even in these subjects; and it is interesting to note that the groups maintain much the same relative order as when all the subjects of school work were included.

TABLE XXII.

School "O. K." Infants.

Age of entry.	No. of children.	Average mark for composition and mental arithmetic.	M. V.
3—3½	14	7.5	2.7
3½—4	12	7.0	2.4
4—4½	6	7.9	2.6
4½—5	13	7.0	3.0
5—5½	4	7.8	1.9

This school, however, was somewhat new. I will next present results from one long established and containing an extremely poor type of children. As before, all children were excluded who had, at

any time, attended any other school. Every year promotion takes place from Infants' departments to Senior schools, and I thought it might be profitable to see how far the attainments of the promoted children depended on the age at which they had entered the Infants' department. The promotion takes place partly under an ability regulation and partly under an age clause. The work on which my conclusions are based was set for me by the Head Teachers of the Boys' and Girls' departments. The exercises and methods of marking follow. The examination was used by the teachers as a basis for the subsequent classification of the children.

Exercises given at the end of September to the children promoted on 31.7.05 *from the infants' to the senior departments of school "N."*

Written Arithmetic. The following sums were dictated in words and were written down and worked by the children:

(1)	(2)	(3)	(4)
791	586		
29	48	903	586
106	193	716	219
387	275		

Three marks were given for correct answers to each of sums (1) and (3), and two marks for each of sums (2) and (4).

Mental Arithmetic. The following problems were given out orally, one by one, and the boys and girls wrote down the answers and the answers only .

1. A boy had 12 apples, he gave 3 to one boy and 1 to another; how many had he left? (Two marks).

2. Take 7 from 10 and then add 5. (Two marks).

3. A little girl had 6d; she spent a penny and then two pence more; how much had she left? (Two marks).

4. How many oranges can I buy for 3d., if they are being sold for 4 a penny? (One mark).

5. Divide 12 marks among 3 boys, giving each the same number; how many do they each get? (One mark).

6. If I had 2d. at first, and then got 1½d. more, and after that ½d. more, how much had I got altogether? (One mark).

7. A little girl went to a shop with a shilling. She spent 3d., how much had she left? (One mark).

Spelling. The following ten words were selected from a reading book previously unseen, and dictated slowly, one by one:—children, called, morning, starting, bread, butter, hungry, became, bright, moment. Each word correctly spelt carried one mark.

Writing. The children wrote with pen and ink on paper the following sentence, copied from the printed matter in their reading books.—*He came running with something in his mouth.* Each serious error in writing implied the loss of one of the ten marks allotted to this exercise.

English Composition. A large and interesting coloured picture was placed before the children, and they were told to write down anything that they saw. A mark was given for each intelligible statement; no marks being deducted for errors of any kind.

Drawing (for boys). The boys were required to

draw with their rulers from a large copy of an oblong flag with crossed diagonals. Marks were given for accuracy of proportion, angles and junctions of lines, up to a maximum of 10.

Needlework (for girls). The description of the exercise was mislaid, and could not subsequently be found: the worked specimens were not preserved.

Reading. The children read from a Standard I. reading book which they had not previously seen. I am not in possession of the system adopted in marking, if there was one; but I feel perfect confidence in it, since both the Head Teachers who were conducting these exercises for me were excellent teachers with long experience in examinations.

TABLE XXIII.

School "N." Promoted Infants, Boys and Girls.

Age of entry.	No. of children.	Average mark per child per subject.	M. V.	Average age on the day of promotion.
3—3½	8	6.4	1.7	7 yrs. 5 mths.
3½—4	15	5.1	1.6	7 yrs. 1 mth.
4—4½	27	6.1	1.9	7 yrs. 7 mths.
4½—5	19	6.4	2.1	7 yrs. 9 mths.
5—5½	10	5.7	2.0	7 yrs. 9 mths.

The lower result in the second group, may very fairly, I think, be attributed to the lesser age of the children; and one would be disposed to assert a slight advantage on the whole to children entering school early when the ages of the various groups are taken into consideration. But the method of selection is unsound, as some of my readers who understand school organization may already have surmised. It is not unusual to send up older chil-

dren who have entered the infants' school late, whilst younger children, sometimes their superiors in ability, are not promoted; this is due of course to the operation of the 'age clause'. We are dealing with groups artificially selected and not, as we did in the previous infants' department, with every child of a certain age. If the causes I have given for the apparent discrepancy are operating— and no educational administrator of any competence would deny that they do operate, it is no part of my task to specify individual cases—their effects would be two, (1) to lower the proficiency mark of the groups entering late, (2) to raise the average age of these groups. But why should not young pupils of the earlier entering groups be retained, as well as those of the later entering groups? Because they have moved forward step by step, and because they are supposed to be more proficient since they have been through the various classes of the school, and because, moreover, the length of their infant school life is ascertainable from the 'forms' (American 'blanks') used in promotion.

With all these difficulties against the method, I still claim that the results, though a satisfactory testimonial to the work of the teachers of the promoted children, indicate little or no advantage in early entry. However, I definitely decided that I would very carefully avoid such artificial selections in the future.

The next infants' department in which I made inquiry was situated in a rather good neighbourhood, and I decided to consider the case of every child who would be between seven and eight years of age by

the end of the current educational year. These were to be found in two classes working with different curricula. The following work was given as the ordinary terminal examination in November, 1905. The questions and method of marking were arranged by the Head Mistress and myself. The work was, of course, arranged so as to be suitable to the classes taking it. There are, doubtless, better methods of testing the mental proficiency of children; I am by no means unmindful of them; but I desired my results to carry conviction to the teachers who arrived at them. Hence school work was a necessary basis of the exercises. We excluded all children who had, at any time, attended any other school, and since there was only one child who had entered before the age of 3 years 6 months her name was left out.

These exercises were set at the end of November, eight months before the close of the educational year.

Reading for Standard I.a. and Standard I.b. The books were the Century Readers, Standard I. Passages were chosen which had already been read in previous lessons. Eight marks were given for correct reading, one of these being deducted for an omission, or an incorrect rendering, or for imperfect articulation. Two additional marks were given for "expressiveness" in reading.

Writing for Standard I.a. and Standard I.b. The children copied a written sentence from the blackboard, writing with pencils on three-lined paper. A maximum of 10 marks was given to writing which contained no serious errors.

Written Arithmetic for Standard I.a. Sets of four

sums were written on the blackboard in figures. These were copied by the children and worked. One of these sets is reproduced below:—

362	459	870	384×4
478	276	356	4
82	305		
897	586		

Three marks each were given for correct answers to the subtraction and multiplication sums, and two marks for each of the addition sums. This was correct marking for these children at this stage of their work; later on they would find the addition more difficult than the subtraction and multiplication sums.

Written Arithmetic for Standard I.b. Sets of sums, easier than those given to Standard I.a., were written on the blackboard as before, and, as before, were copied and worked by the children. I give one set as indicative of the difficulty of the work.

76	43	456	762
32	56	238	148
45	24		
8	19		
27	8		

Three marks were given for correct answers to subtraction sums, and two for each of the addition sums.

Mental Arithmetic for Standard I.a. The following problems were given out orally by the Head Mistress. The answer, and the answer only, was written down by the children. This was the first exercise worked in this way by these children.

1. Tommy had 6 marbles and Johnny had 7 and James had 3; how many had they altogether? (One mark).

2. Mary had 20 nuts, her brother had 3 less; how many did he have? (Three marks).

3. There were 4 boxes of pencils with 7 in each box; how many pencils were there altogether? (One mark).

4. Divide 14 nuts between two boys, giving each of them the same number; how many would each boy have? (Two marks).

5. Mary had seven thimbles and her sister had 3 more than Mary. How many thimbles were there altogether? (Three marks).

The marks attached to the problems were the assessments of the Head Mistress. I should not myself have given more than two marks for the answer to question 2, but I admit that the result showed the teacher's estimate of difficulty in this case to be more correct than mine. Standard I.b. worked no problems in Arithmetic.

Spelling for Standard I.a. Ten words were chosen from lessons previously read, and were called out slowly, one by one, the children writing them down. The words were—bread, salt, mother, water, trees, birds, parrot, letter, slate, pencil. One mark was given for each word spelt correctly.

Spelling for Standard I.b. In this class five words were given—father, water, cart, face, hands; and two marks were given for each word spelt correctly.

English Composition for Standard I.a. An object lesson on water had been given some months pre-

viously, and the children wrote on paper with pencils anything they knew or remembered about "water." One mark was given for each intelligible statement. No marks were deducted for incorrect spelling, punctuation, construction or writing. Standard I.b. omitted this exercise

Needlework (for girls). Standards I.a. and I.b. A hemming exercise was given (without the join).

A knitting exercise was given with chain edge and casting off. Five marks were given as a maximum for each exercise.

Drawing (for boys). Standards I.a. and I.b. Each boy was required to draw a flag with his ruler from a copy before him. He was told to make each side of the flag two inches long, to join the corners, and to draw a long staff at the bottom. Two marks were given for approximate equality in the sides, two were given for approximate equality in the angles and one mark was given for good diagonals. On a subsequent occasion the boys, with a big copy of the flag before them, drew it on paper "free hand." The marks allotted were as before.

TABLE XXIV.
School "G." Infants.

	Age of entry.	Average age of entry.	No. of children.	Average mark per child per subject.	M. V.	Average mark for composition and mental arithmetic.	Average age on 31, 7, '06.
Group I.	3½—4	3 yrs. 10 mths.	5	6.2	1.0	4.5	7 yrs. 5 mths.
Group II.	4—4½	4 yrs. 3 mths.	11	7.0	.7	5.6	7 yrs. 6 mths.
Group III.	4½—5	4 yrs. 9 mths.	21	7.4	1.1	5.6	7 yrs. 8 mths.
Group IV.	5—5½	5 yrs. 3 mths.	9	6.9	1.1	4.8	7 yrs. 9 mths.

It would be very difficult, on these figures as a basis, to conclude that there is any educational advantage in attendance at school at an early age. Nor do I think we could conclude that there is any disadvantage. The earliest entering group is the least proficient, but they happen to be younger than the others; and there is some inferiority about the latest group though they are older than the two preceding ones. The striking thing is the extraordinarily little difference between the groups. We fully realise this when we reflect that Group I. will have had an average school life of 3 years 7 months, Group II. an average school life of 3 years 3 months, Group III. of 2 years 9 months and Group IV. of only 2 years 6 months, by the end of the current educational year. If the ages are calculated to the end of the month in which these exercises were done, Group I. has already had a school life of 2 years 11 months, Group II. of 2 years 7 months, Group III. of 2 years 1 month, and Group IV. of 1 year 10 months only.

I have suggested that the groups which entered late may owe their additional proficiency to the fact that they are older than the groups who entered earlier. But it is very doubtful whether this is the case. To test this issue, I tabulated the names of the children with their ages at the end of the educational year, and the total marks which they obtained for proficiency, thus:—

Name.	Age in mths.	Total marks.
Drake, Frank,	84	52
Cooke, Reggie,	84	61
Pryor, Wm.,	85	35
.....	..	..
Hogan, Alf.,	89	54
.....	..	..
Hill, Alice,	91	54

Probably the following table will make clear that age within the limits of these ages, namely, 7 and 8 years, and within the same class, is not a factor of importance.

TABLE XXV.
School "G." Infants.

Present age.	No. of children.	Average proficiency mark.
7 yrs. 0 mths. to 7 yrs. 3 mths.	7	49
7 yrs. 3 mths. to 7 yrs. 5 mths.	6	52
7 yrs. 5 mths. to 7 yrs. 7 mths.	8	47
7 yrs. 7 mths. to 7 yrs. 9 mths.	7	52
7 yrs. 9 mths. to 7 yrs. 10 mths.	10	54
7 yrs. 10 mths. to 8 yrs. 0 mths.	8	44

If age is a factor, though of too slight a character to be shown by a method of grouped averages, it should become apparent if we calculate the correlation between "months" and "marks" by the product-moment method. The coefficient of correlation, however, calculated on the Pearson formula, is —.024, with a "probable error" of .1.

If then, within these groups, we are entitled to regard age as an unimportant factor, it will become more probable from the Table of Averages (Table XXIV.) that early age of entry has not favourably affected the mental proficiency of these children. My next step was to rearrange the tabulated list of names, and to consider only the correlation between length of school life and mental proficiency. The list was thus arranged:—

Name.	Length of school life beginning with the longest.	Months.	Total marks.
Syancott, Alice,	3 yrs. 11 mths.	47	45
Fullerton, Dolly,	3 yrs. 11 mths.	47	51
Schalk, Rose,	3 yrs. 11 mths.	47	45
Brookman, B.,	3 yrs. 10 mths.	46	33
.....	.....	..	..
.....	.....	..	..
Goodyer, Nellie,	2 yrs. 2 mths.	26	57

Collecting these results and grouping them, the result indicates that, so far as this school is concerned, there is a slight positive advantage in commencing late, as will be seen by the following table.

TABLE XXVI.

School "G." Infants. Class i. Standard I.a.

Length of school life.	No. of children.	Average total mark for proficiency to the nearest unit.	M. V.
47 mths. to 39 mths.	7	47	6
39 mths. to 35 mths.	8	49	7
35 mths. to 34 mths.	18	49	7
34 mths. to 32 mths.	5	50	7
32 mths. to 26 mths.	8	53	5

I regret that I am unable to tabulate the results of the children's work in Class ii. with those of Class i., but this school was one in which no English Composition had been done and no problems in Arithmetic had been given to the pupils until they reached the first class; and, as was seen above, the work set for Class ii. was different from that set for Class i. I therefore give the results separately.

TABLE XXVII.

School "G." Infants. Class ii. Standard I.b.

Age of entry.	No. of children.	Average mark per child per subject.	Average age on 31, 7, '06.
3½—4	2	4.5	7 yrs. 1 mth.
4—4½	4	4.1	7 yrs. 3 mths.
4½—5	3	4.8	7 yrs. 3 mths.
5—5½	6	5.7	7 yrs. 3 mths.

Again there are distinct indications of a rise in proficiency with late entry into school, nor is there any suggestion afforded by the table that this is due

to the fact that the later entries were older at the time of the examination than the earlier ones. But, of course, in order to obtain a complete estimate I ought to be able to put the results of the two classes together, and that I cannot do for the reason I have given above. However, it may be interesting to classify the results of this class also in relation to length of school life.

TABLE XXVIII.

School "G." Infants.

Length of school life.	No. of children.	Average total mark.	Average age on 31, 7, '06.
39 to 35 mths.	3	19	7 yrs. 3 mths.
35 to 33 mths.	4	18	7 yrs. 2½ mths
33 to 23 mths.	5	31	7 yrs. 3½ mths.
23 mths.	3	28	7 yrs. 2⅓ mths.

The correlation between length of school life and mental proficiency worked out from the individual cases on the Pearson formula is —.45 with a "probable error" of .14. This result is in favour of late entry; but it must in fairness be considered in conjunction with those of Standard I.a. And it is interesting to note that within this class the relation between age at the time of the examination and proficiency is perhaps somewhat inverse, as may be gathered from the following table of averages:

TABLE XXIX.

School "G." Infants.

Age on 31, 7, '06.	No. of children.	Average total mark to nearest unit.
7 yrs 0 mths.	3	28
7 yrs. 1 mth.	4	21
7 yrs. 2 mths. and 7 yrs. 3 mths.	3	29
7 yrs. 5 mths. and 7 yrs. 6 mths.	3	24
7 yrs. 8 mths.	2	22

The next school for which the results of my inquiry are presented is very favourably situated in a good neighbourhood. It has already been referred to as School "R." This infants' school had long been known as one in which Reading, Writing and Arithmetic were postponed until the higher classes were reached; so, as I intended to use a school examination of a Standard I. character which involved these subjects, I limited my inquiry to the three large classes which were already in that Standard. A few children over seven years of age were in lower classes, but so few that their inclusion could have affected the result but little.

The following exercises were set:

Reading. Each child read from a Standard I. book which had not before been seen. It was selected so as to be of moderate difficulty only. About five lines were read by each pupil, one mark being deducted for each error from a maximum of 10.

Dictation. Ten words were dictated—kettle, boil, rabbit, tail, caught, cruel, bread, branch, neat, early. One mark was allowed for each word correctly spelt.

Written Arithmetic. The following sums were dictated: (1) ninety plus five hundred and eighteen plus seven hundred and sixty-one plus eighty-eight plus three hundred and thirty-six. (2) Take away seventy-seven from ninety-one. (3) Multiply five hundred and six by five. (4) Divide ninety-five by four. Three marks each were given for the subtraction and division sums and two marks each for the addition and multiplication sums.

Mental Arithmetic. Five problems were given out

orally, each one having two "steps." The children wrote down the answers and the answers only. Two marks were given for each correct answer. The exercises were:

(1) Tom had half a dozen nuts and John had three times as many; how many had they together?

(2) If I have four boxes with four pencils in each box, how many more shall I need to make twenty-four?

(3) I had twenty-four apples in a basket. I took half of them out and divided them equally among three boys; how many did each boy get?

(4) If I bought five oranges every day for five days and then gave away nineteen, how many had I left?

(5) John has fifteen oranges and Tom has three more than John; how many have they together?

English Composition. A picture was placed before the children which they had not seen before, and they were required to write down anything which they saw in it or thought about it. Spelling, punctuation and grammatical construction were disregarded, a mark being given up to a maximum of 10 for every intelligible statement. (I need hardly say that the maximum was chosen so as to be suitable to the best pupils.)

Drawing and Needlework. The boys did one of their usual exercises in drawing and the girls one in simple needlework which were marked by the teachers in the usual way up to a maximum of 10. Great care was used to adjust the standard of marking of drawing and needlework, so that neither the

boys nor girls got an advantage in marks because of their respective subjects.

Writing. A writing exercise given by the head mistress was also marked up to a maximum of 10. It was the practice in this school to mark the writing with great care; very few pupils indeed received the maximum mark.

The results were summarized on the basis of length of school life and are given below:

TABLE XXX.

School "R." Infants.

Length of school life.	No. of children.	Average time in school.	Average age of entry.	Average age at time of examination.	Average mark per child.
4—4½ yrs.	4	4 yrs. 2 mths.	3 yrs. 6 mths.	7 yrs. 8 mths.	6.6
3½—4 yrs.	15	3 yrs. 10 mths.	3 yrs. 8 mths.	7 yrs. 6 mths.	6.7
3—3½ yrs.	7	3 yrs. 2 mths.	4 yrs. 3 mths.	7 yrs. 5 mths.	6.5
2½—3 yrs.	24	2 yrs. 9 mths.	4 yrs. 8 mths.	7 yrs. 7 mths.	6.8
2—2½ yrs.	23	2 yrs. 3 mths.	5 yrs. 2 mths.	7 yrs. 5 mths.	6.4
1½—2 yrs.	19	1 yr. 10 mths.	5 yrs. 7 mths.	7 yrs. 5 mths.	6.0
1—1½ yrs.	7	1 yr. 4 mths.	6 yrs. 2 mths.	7 yrs. 6 mths.	6.0

It is certainly astonishing to find how little difference there is in attainments between those children who have had three and four years of school teaching and those who have had but one or two. It is not, as might be suggested, due to the almost exclusive kindergarten work in the lower classes, for the same result was found in other schools, notably in School "G," in which the work even of the lowest class was thought to be *directly* preparatory for that of the Standard classes. But after an entrance age of 5, there is a slight though definite drop. Between

the ages of 3 and 5 neither advantage nor disadvantage can be claimed for early entry.

It might, however, be maintained that early kindergarten work, whilst not favouring the acquisition of such aptitudes as Reading, Spelling, Notation and Computation, would still exercise a favourable influence on the activities involved in English Composition and in the mental solution of numerical problems. These exercises would be chosen by teachers as specially indicative of what is called "intelligence." The grouping is as before:—

TABLE XXXI.
School "R." Infants.

Length of school life.	No. of children.	Average mark for composition and mental arithmetic.
4—4½ yrs.	4	7.1
3½—4 yrs.	15	6.1
3—3½ yrs.	7	5.1
2½—3 yrs.	24	6.1
2—2½ yrs.	23	4.9
1½—2 yrs.	19	5.2
1—1½ yrs.	7	5.6

There seems, as in former cases, to be no advantage in early entry, at least until after an entrance age of about 5 years is passed, and it is rather doubtful even then. The question at issue is, however, so important that I thought it necessary to get a more accurate measure of correlation than can be provided by a number of fluctuating averages; so the names of all these pupils were arranged in order showing

Name.	Length of school life in months.	Combined mark for composition and mental arithmetic. Max. 20.
Davis, Harold,	51	7
Rumsden, Stanley,	51	16
Harding, Harold,	50	12
Sherington, Leslie,	49	18
.....	..	..
Anderson, Florence,	14	15

Then the product-moment formula was applied and the correlation between length of school life and proficiency in composition and mental arithmetic was found to be +.159 with a "probable error" of .06. It is just possible that length of school life has favourably influenced the work in English Composition and Mental Arithmetic, but also there is no doubt that, if so, its influence is extremely small. And it is in the groups entering after 5 years that this decline, small as it is, takes place.

The next infants' department, the results from which are presented here, was of different character from the last. If the elementary schools of London were graded into four classes according to the character of the neighbourhoods in which they are situated, this school would fall in Class 2, counting upwards from those situated in the worst neighbourhoods as Class 1. Further, the school was very small, containing only four classes: the head mistress young and enthusiastic and full of the conviction that good method in infants' departments implied, as the word method is supposed to imply, "method" for learning something, and not, as is sometimes thought, "method" for its own sake. Further, all the children between 7 and 8 years of age (there were none in the school over 8) at the end of the educational year were in the Standard I. class; so that the ordinary terminal examination, which was, as usual, taking place just previous to the end of the educational year, was quite adequate for my purpose. As before, all cases were excluded of children who had ever attended any other schools.

The questions set at the terminal examination and the method of marking the exercises were as follow—:

Reading. Each child read two paragraphs from the King Alfred Reader (page 30 onwards), was asked to pronounce at sight, without the context, difficult words occurring therein, and was also asked two questions on the meaning of phrases. A mark was subtracted for every error or word unsatisfactorily articulated.

English Composition. The Head Mistress told the children the story of the Lion and the Mouse. Immediately afterwards, they wrote down what they could remember of it, with pen and ink, using their own words. One mark was given for every intelligible statement bearing on the tale. Two marks were given for a statement expressing, in any way whatever, the "moral" of the story. No marks were given for spelling, punctuation or grammatical construction.

Dictation. Ten words—Fairy, beautiful, castle, soldier, ditch, friend, afraid, animal, slept, noise—were called out slowly, the children writing them down one by one. One mark was given for each word correctly spelt.

Hand-Writing. The children were required to write the following sentence copied from a printed book.—"Tom never had any money to spend." One mark was subtracted from ten as a maximum, for every word copied wrongly, and every letter wrongly made or wrongly joined up.

Arithmetic.. The whole class was divided into two

sets, A's and B's. I give those sums only which were set to A's. The numbers were given out concretely, that is, they were called "apples" or "boys" or something material; and the subtraction sums were not necessarily called out with their minuends first.

The following were the numbers given:

600	8		
99	969	869	990
876	87	694	699
654	650	—	—
427	876	=	=
—	—		
—	—		

Three marks were given for each addition sum taken down correctly and correctly worked, and two marks for each subtraction sum.

Arithmetic. Written Problems. The following sums were set in writing and the children answered in writing.

1. In a train there are 96 people. If 78 get out how many will there still be in the train?

2. 64 sheep were put into a field and then 26 more. How many were there in the field altogether?

3. In a box there are 99 eggs. 72 were taken out and six were broken; how many eggs were left?

4. A boy has 83 nuts in one bag and 46 in another bag. He loses 13, how many has he after that?

Two marks were given for the correct answers to each of numbers 1 and 2, and 3 marks for correct answers to each of numbers 3 and 4.

Arithmetic. Mental Problems.

The following questions were asked one by one

by the teacher and each child wrote down the answer after working the sum mentally. Two marks were given for each correct answer.

a. There were 12 trees in a row and there were 10 of these rows. If two were blown down, how many were left standing?

b. If 25 oranges were divided among 4 boys so that each got the same number, how many did each get and how many were left over?

c. There were 12 sweets in one box and 16 sweets in another. How many should I have to take out of one box and put in the other box so as to get the same number in each?

d. John has 6 marbles and Tom has 2 more than John. How many have Tom and John together?

e. Showing 13 nuts lying on a table the teacher asked, "If 4 boys divide these 13 nuts among them, so as to have each an equal number, how many will be left on the table?"

Drawing (for boys).

(1) An exercise was given to be copied with the aid of ruler and set-square, and marks were deducted for crooked lines or lines wrongly placed.

(2) A kite was shown to the class and the children drew it "freehand" as well as they could. Marks were deducted for omission of important parts or very unsatisfactory proportions.

Needlework (for girls). Coloured cotton was used for the following exercises:

(a) A strip of hemming showing "beginning on" and "break in hem."

(b) A strip of top-sewing, 5 inches long, showing "beginning on" and sewing.

Marks were deducted if the stitches were too small, or were very irregular in size; also for incorrect "beginning on."

The general summary of results follows:—

TABLE XXXII.

School "C." Infants.

Age of entry.	No. of children.	Average mark per subject.	Average age at the time of this examination.	Average length of school life.
3—3½ yrs.	8	6.2	7 yrs. 5 mths.	4 yrs. 1 mth.
3½—4 yrs.	6	5.6	7 yrs. 6 mths.	3 yrs. 7 mths.
4—4½ yrs.	12	5.0	7 yrs. 5 mths.	3 yrs. 1 mth.
4½—5 yrs.	9	5.6	7 yrs. 7 mths.	2 yrs. 9 mths.
5—5½ yrs.	8	5.3	7 yrs. 8 mths.	2 yrs. 4 mths.
5½—6 yrs.	4	5.0	7 yrs. 9 mths.	2 yrs. 1 mth.

If we are entitled to assume that the older groups ought to be more proficient than the younger ones within this class, which, it will be remembered, contains *all* the children in the school between 7 and 8 years of age, and *no* children either over 8 or under 7, we may, I think, conclude that there is, perhaps, a slight positive relation between early entry and proficiency. The most proficient group is that entering from 3 to 3½ years. Five of these children are marked as coming from especially good homes and only one as coming from a 'poor' home; and this factor, which I hope to deal with at length presently, doubtless counts for something; whereas the four children in the latest entering group include two children from very poor homes and none from homes marked specially good. And of the second group, namely, those entering from 3½ to 4 years of age, four are marked as coming from specially

good homes. In any case, however, the difference made by additional months and years of schooling seems very slight. The last column, indeed, seems to me a most instructive one, the facts of which should be borne in mind whenever we look at this table. The drop occurs after an entrance age of 5 years is passed.

I propose to work out the correlation between age of entry in months and proficiency as measured by the results of this examination by the usual formula from the individual results. The conclusion is, of course, dependent on the assumption that general mental proficiency can be measured by carefully conducted school examinations. I believe it can, but believe also that it can be better measured by exercises more strictly psychological, a question which, however, for the present, must be set on one side. On the assumption that we are measuring the mental proficiency of these children with approximate accuracy, we proceed, as in former cases, to arrange the names and figures in appropriate columns, in preparation for estimating exactly the relation betwen the quantities we are considering by means of a formula of correlation.

Name.	Age of entry in months.	Total mark for all subjects.
Creed, Alf.,	36	44
Dawe, Fred.,	36	44
Capern, Fred.,	38	64
.....	..	..
Hall, Florence.	70	47

The correlation between age of entry and mental proficiency = —.167 with a 'probable error' of .1. This appears to indicate a slight advantage in early entry, but the size of the probable error as com-

pared with the coefficient of correlation, renders the conclusion decidedly uncertain; though we have also to remember that the later entering groups were slightly older at the time of the examination.

All the above observations had been made during the summer and autumn of 1905 and winter of 1905-1906; the next were made in the spring of 1907. The school in which they were made was unknown to me personally, except in connection with a previous inquiry as to the best methods of teaching reading. It was situated near a suburban common in a rather good residential district: the Boys' and Girls' departments, were, I believe, known as Higher Grade Schools. The stories, toys, animals and sensory stimulations, which are now recommended for the teaching of young children, had long been a noticeable feature in the work of this school. There was, too, a quite unusual absence of restraint, and it was with very considerable interest that the Head Mistress and I set about our inquiry. We decided to deal with every child on the school register who would be 7 or over 7 years of age at the close of the educational year, excluding, of course, as in previous cases, all those who had ever attended any other school, public or private. The children in question were to be found in four classes, in Standard I.a. (Boys), in Standard I.a. (Girls), in Standard I.b. (Boys and Girls), and in Grade III.[1] (Boys and Girls). We were able to schedule 40 in the first of these classes, 38 in the second, and 45 in the third (the half-dozen in the fourth class are included here). This fact in itself speaks volumes for the non-migratory character of

[1] Grade III is an Infant School grading; it consists chiefly of six-year-old children.

the population of the neighbourhood, which was indeed a settled one, possessing well-grown children. The children in the fourth class referred to did not number more than half-a-dozen altogether.

It is hardly necessary to give again in detail an account of how the schedules were prepared. A terminal examination had been conducted as usual, just before the preceding Christmas, by the Head Mistress, and individual marks had been given for Reading, Writing, Spelling, Written Arithmetic and Mental Arithmetic. Each of these subjects received a maximum of 10 marks. The work set for the Standard I.a. (boys' class) and the Standard I.a. (girls' class) had been the same; but, as the results from the girls' class are somewhat lower throughout, and especially in Mental and Written Arithmetic, I shall present the results for the two classes separately. The work set for Standard I.b. was not so hard as that set for Standard I.a., and boys and girls in this class were taught together. Some half-dozen children who were below the standard classes are included with Standard I.b.

The following are the results of the Head Mistress's terminal examination:—

TABLE XXXIII.

School "W." Infants.

Standard I.a. Boys.

Age of entry.	No. of children.	Average age on 31, 7, '07.	Average mark per subject.
3—3½	3	7 yrs. 11 mths.	8.9
3½—4	8	7 yrs. 11 mths.	8.7
4—4½	13	7 yrs. 9 mths.	8.9
4½—5	3	7 yrs. 10 mths.	8.9
5—5½	2	7 yrs. 10 mths.	9.6

Standard I.a. Girls.

Age of entry.	No. of children.	Average age on 31, 7, '07.	Average mark per subject.
3—3½	0	0 yrs. 0 mths.	0.0
3½—4	2	7 yrs. 8 mths.	6.6
4—4½	14	7 yrs. 8 mths.	7.2
4½—5	14	7 yrs. 11 mths.	7.9
5—5½	7	7 yrs. 11 mths.	6.4
5½—6	1	7 yrs. 8 mths.	6.8

Standard I.b. Boys and Girls.

Age of entry.	No. of children.	Average age on 31, 7, '07.	Average mark per subject.
3—3½	4	7 yrs. 9 mths.	8.0
3½—4	5	7 yrs. 4 mths.	6.6
4—4½	10	7 yrs. 6 mths.	7.4
4½—5	8	7 yrs. 8 mths.	7.2
5—5½	15	7 yrs. 5 mths.	7.1
5½—6	2	7 yrs. 6 mths.	7.6
6—6½	1	7 yrs. 5 mths.	8.4

It would, I think, be difficult to conclude anything from these figures except the irrelevance of the entrance age up to 5 years at least. There seems, however, to be some indication in this school that entrance after five is accompanied by slightly diminished progress; the average mark for all children entering after 5 is 7.2.

But of course there are difficulties in accepting these results as altogether beyond criticism. In the first place, the proportion of children entering at later ages as compared with earlier ones is greater in Standard I.b. than in the two Standard I.a. classes. And in the second place, I doubted whether the exercises given were, perhaps, altogether adequate to test the advantage of early entry in a school whose lower classes were taught so exclusively on what are usually called "kindergarten"

methods. Further, I had long had in mind a psychological examination rather than one based on attainments in subjects which had been directly taught in school. If, however, I used well-known psychological tests, I should not necessarily carry the teachers with me in the work and in the conclusions arrived at. So I finally effected a kind of compromise. All the children were tested by me and their exercises were worked in my presence. The Head Mistress, the Teachers and myself marked the papers conjointly and the exercises set were unlike those that had been set before for school work. I thought if I could get an exercise which should measure the power to perceive visual form, if I could get an immediate memory exercise and an imagination exercise, I should do well. And I subsequently determined on an exercise in reasoning, using—since the children were somewhat accustomed to reason numerically—some problems involving number, most of which were new. I have since found cause to believe that the correlation between numerical and general unquantitative reasoning may not be very high, at least with older children: but my readers will at least accept the test as bearing on school proficiency.

I propose to give the exercises in full with their method of administration and marking. Only two of these exercises were given to the same child the same morning.

Immediate Memory. Considering the ages of the children, I thought it advisable to use an auditory test (most of these children were probably, by this age, predominantly visual, as some of my subse-

quent work has indicated. I was, however, accepting American and German results as valid for English children). The test consisted of six consonants selected so as to yield no obvious associations to the minds of the children. They were called out twice in 20 seconds in a firm, clear voice, with a slight pause after the third and a longer pause after the sixth. It is probable that a grouping into threes for children of this age is the most satisfactory division of six units. One minute and forty seconds were allowed, during which the children wrote down as much as they could remember. At the expiration of two minutes from the commencement of the exercises the second series of six consonants was given out, and so on throughout. The following is a specimen exercise:—

y s b m t r

Six of these exercises were given one after the other. The method of marking was as follows:—Three marks were allowed for every consonant correctly placed, two marks if the consonant was one remove to the right or left of its proper position, and one mark if it was two places to the right or left of its proper position. My reader will see that we have a possible mark of no less than 108; the highest mark actually obtained was 100, the lowest 17; the Standard I.a. class averaged 60, the lower classes about 40. The only present interest attaching to these figures is the indication that we had obtained a series of numbers which would be very sensitive to inequalities of merit. For purposes of tabulation the marks were reduced to a basis of 10 as a maximum.

Observation Exercise. On the same morning, after an interval of a few minutes, a large and somewhat diagrammatic drawing of the seed pods of the sycamore (1 foot 4 inches by 1 foot in size) was placed before the children and they were asked to draw on paper what they saw. But it was not intended that the exercise should be one of dexterity in draughtsmanship. In marking the papers, attention was paid only to the presence or absence of important parts and their relative proportions. Three persons, two of the teachers and myself, jointly assessed each paper with 10 for a maximum mark. The highest mark was 9, the lowest 1 and the average was approximately 5.

Imagination Exercise. About a week later a new exercise was given in English Composition. The words cat, dog, boy, girl were written on the blackboard and the children were asked to write a story and put these words in it. In marking their exercises, one mark was given for every intelligible statement, with an additional mark if the statement was connected with the previous one. No errors in spelling or punctuation were marked, nor was a proper sentence form insisted on. Any statement either as sentence or phrase received a mark if it was in any way intelligible. The highest mark was 27; four children received no marks, and there were five with 1 mark only. The average mark in the Standard I.a. classes was approximately 15½, the boys scoring about 14 and the girls 17 marks. In Standard I.b. the average mark was 5. In summarizing the marks they were reduced to the basis of 10 as a maximum.

Reasoning Exercise. On the same morning, the two exercises being separated by an interval, the following numerical problems were given. They were written by the teacher on the blackboard, read by the teacher, then read by me, and were illustrated concretely to the children with everything necessary to make the problems understood, though in no case were the objects used about which the calculations had to be made—these were imaginary in every case. The following were the problems with the marks allowed attached. Only the answers were to be written down:

1. There were 10 boys in this room, 2 in the next and 2 in the next; how many boys are there altogether? (one mark).

2. There are 16 marbles in this box and 12 in this box; how many more are there in the first than in the second? (two marks).

3. If there are 7 trees in a row and there are 4 rows, how many trees are there altogether? (one mark).

4. There are 6 boys and we are going to divide a shilling between them; how many pennies will each boy get? (one mark).

5. Miss A. (one of the teachers) has 10 prizes and Miss B. (another teacher) has 6 prizes; how many must I take away from Miss A so that they shall both have the same number? (three marks).

6. I divide sixpence between these two girls so that one shall have twopence more than the other; how much will they each get? (three marks, one correct answer one mark).

7. Here are two boys—Johnny and Tommy. Tommy has 8 nuts and Johnny has 2 more than Tommy; how many have they both together? (three marks).

Four children received the maximum mark of 14, and four received 0 marks. The average for Standard I.a. (boys) was about 9, for Standard I.a. (girls) about 7, and for Standard I.b. (boys and girls) about 4½. In summarizing, the marks were reduced to a basis of 10 as a maximum.

I propose first to give the grand summary of results.

TABLE XXXIV.

School "W." Infants.

Age on entry.	Average age on 31. 7. '07.	No. of children.	Average mark per subject.
3—3½	7 yrs. 10 mths.	7	5.1
3½—4	7 yrs. 7 mths.	14	4.4
4—4½	7 yrs. 8 mths.	32	4.9
4½—5	7 yrs. 9 mths.	34	5.2
5—5½	7 yrs. 7 mths.	20	4.0
5½—6	7 yrs. 7 mths.	3	3.9
6—6½	7 yrs. 5 mths.	1	3.1

I think we can say definitely, especially when we consider the comparative ages of the children at the time they did these exercises, that, until an entrance age of 5 years is passed, there is no advantage in an earlier as against a later age in entering school; the correlation would indeed seem slightly in the opposite direction. After the entrance age of 5 there is a drop, not very large, but certainly present; though even here it must be admitted that these children are, on the average, younger than the groups entering earlier, except the children who enter from

3½-4, who are, however, found to be superior. The conclusion is considerably strengthened by the figures for the particular exercises.

TABLE XXXV.

School "W." Infants.

Age on entry.	No. of children.	Reasoning Exercise. Maximum 10.	Perception Ex. Max. 10.	Imagination Ex. Max. 10.	Memory Ex. Max. 10.
3—3½	7	5.8	5.7	4.0	4.9
3½—4	14	4.9	4.0	3.9	4.7
4—4½	32	5.0	4.3	5.0	5.5
4½—5	34	5.5	4.8	4.9	5.8
5—5½	20	4.2	4.3	3.3	4.3
5½—6	3	3.6	*6.0	3.8	*2.4
6—6½	1	4.3	1.0	2.2	2.9

*These are averages of two cases only; the third child in this group was not present when these exercises were done. The last group consists of one child only.

IV.

AGE OF ENTRY IN ITS RELATION TO THE SOCIAL CIRCUMSTANCES OF THE CHILDREN.

I am quite sure that many of my readers have gone with me so far, but have felt all along that I was omitting a most important factor bearing on the question at issue. There is a belief widely spread that "Board School" children go to school at 3 years of age because their homes are invariably poor, their mothers go out to work and their older sisters are "minding baby." I do not wish to express myself too strongly, because I am aware that vehemence defeats its own object; but I do wish to say that whoever is of opinion that the parents of Board School children form a homogeneous class of poverty-stricken and otherwise inferior persons, and that all the children, or even a considerable minority of them, come from unsatisfactory homes (except in as far as town life under any circumstances may be unsatisfactory), is not even at the commencement of a proper understanding of the big educational problems of London. In the first place, the differences in bodily growth and mental proficiency between the children attending different schools is very considerable. I have taken persons accustomed to anthropological observation rapidly from one of the worst to one of the most favourably situated schools, and they have expressed unbounded astonishment at the differences, which indeed re-

quire no extended examination to become apparent. Short, restless, wrinkled, crafty, unwholesome looking children, yet muscularly vigorous and with a dog-like attachment to their teachers, give place to well-grown boys and girls (especially girls), open-faced, strong and quiet, capable of sustained mental application and bearing themselves as though their respect for their teachers, great as it is, were nevertheless balanced by much respect for themselves.

These are the extremes; the gradations are many. The question of questions, of course, is just how far all this difference is due to hereditary influence and how far to social environment. That is the biggest question with which the Theory of Education (I include now more than Pedagogy) has to deal. Are we by free education, free meals, free holidays, increasing the population at the wrong end, or are we, on the contrary, introducing an element of strength into the population, improving and so eliminating the inferiority which we all deplore? Now I am not unmindful that my problem in this paper is really only a part of this vastly greater problem, which, I maintain, can never be solved directly for human beings without anthropological records which, today, no one has either adequate means or adequate opportunity of making.

But even the partial and subsidiary problems connected immediately with my own investigation may throw some reflected light on the larger one. In the first place, we shall find reason to believe that the solution of our own problem—the effect on mental proficiency of early entry into school—is not arrived at by believing that the children with "poor"

homes come to school at three, those from better ones at four, and those from the best homes of all after five and six years of age. Of course, we should expect, if that belief were true, that children from "poor" homes entering earlier would not be in advance of children entering later who came from better homes, even if the former had really profited intellectually by their longer school life. It is certainly true that, in the best suburban districts, children begin school later than in very poor neighbourhoods; but if we measure these against each other, we are comparing children who are, perhaps, congenitally very different; at any rate they are very differently situated. My comparisons have, therefore, been limited to children attending the same school.

A careful reader of the foregoing statistics will already have noticed how evenly the pupils are spread out among the various groups of entry. Even in the poorest school selected, the number coming in from 3 to 3½ years of age is not greatly in excess of those coming later, and I was myself astonished to find, notwithstanding the law as to compulsory education, what a large proportion come to school for the first time decidedly over 5 years of age. But are not the children who come in at 3 to 3½ years of age from poorer homes than those coming in from 3½ to 4 and 4 to 4½ and 4½ to 5 years of age?

We have, however, not yet decided what a "poor" home is. In consultation with Head Teachers I decided that a poor home should mean for us one in which there was no adequate means of super-

vision if the child were not at school: a drunken mother or one who, without grown-up daughters at home, was compelled to go out to work, implied such a home. Obviously, parental neglect constituted a poor home. Having settled what we should mean, the Head Teacher and the Teacher of the class in consulation marked a "P" against the name of every child on the schedules who came within our definition. The marking in different schools was, I believe, surprisingly uniform; but if it were not, it would not affect these results, unless the standard varied within the same school, which, I think, is very improbable. Perhaps the reader may obtain the most satisfactory comprehension of this side to the question if I present the results in some sort of order beginning with the schools, whether senior or infants' departments, which were situated in the best neighbourhoods.

TABLE XXXVI.

School "W." Infants.

Age of entry.	No. of entries.	No. marked P.	Percentage of children marked P.
3—3½	7	1	14.3
3½—4	14	0	0
4—4½	32	2	6.2
4½—5	34	1	2.9
5—5½	20	1	5.0
5½—6	3	0	0
6—6½	1	0	0

The number of such children in this school is, as we should expect, extremely small, namely, only 5 children out of 111, roughly 5 per cent., and of these, be it noted, only one child comes to school before 3½ years of age.

Let me take as a second case the infants' department of another well-situated school.

TABLE XXXVII.

School "R." Infants.

Age of entry.	No. of entries.	No. marked P.	Percentage of children marked P.
3—3½	9	2	22
3½—4	9	0	0
4—4½	13	2	18
4½—5	33	4	12
5—5½	23	0	0
5½—6	8	0	0
6—7	4	0	0

In this school again we have a very small number of children marked P, in fact, only 8 altogether; and, contrary to general belief, of these 8 children, 4 come in, not at 3, but at 4½ to 5 years of age.

The next tabulation shows the results obtained from a similar inquiry in the Girls' department of the same school.

TABLE XXXVIII.

School "R." Girls.

Age of entry.	No. of entries.	No. marked P.	Percentage of children marked P.
3—3½	32	2	6.2
3½—4	26	2	7.6
4—4½	30	2	6.6
4½—5	63	3	4.7
5—5½	64	0	0
5½—6	13	0	0
6—6½	9	0	0
6½—7	4	0	0

The children from "poor" homes are, as we should expect in a school of this kind, very few in number, but they are spread out fairly evenly among all the groups who enter before 5 years of age.

I present next the results from three departments of a school well-situated, but comparatively new, and

consequently attended by children of very mixed character. In this school we not only marked the children who came from poor homes, but also marked those who came from specially good homes; these cases were marked "E."

TABLE XXXIX.

School "G." Boys.

Age of entry.	No. of entries	No. marked E.	No. marked P.	Percentage of children marked E.	Percentage of children marked P.
3—3½	12	1	3	8.3	25.0
3½—4	7	1	2	14.3	28.6
4—4½	8	1	1	12.5	12.5
4½—5	16	2	2	12.4	12.5
5—5½	12	4	0	33.3	0
5½—6	2	1	0	50.0	0

School "G." Girls.

Age of entry.	No. of entries	No. marked E.	No. marked P.	Percentage of children marked E.	Percentage of children marked P.
3—3½	7	0	2	0	28.6
3½—4	4	0	1	0	25.0
4—4½	15	2	1	13.3	6.6
4½—5	10	1	2	10.0	20.0
5—5½	25	4	2	16.0	8.0
5½—6	3	1	1	33.3	33.3

School "G." Infants.

Age of entry.	No. of entries	No. marked E.	No. marked P.	Percentage of children marked E.	Percentage of children marked P.
3—3½	1	0	0	0	0
3½—4	7	1	1	14.3	14.3
4—4½	18	4	6	22.2	33.3
4½—5	24	7	3	29.2	12.5
5—5½	18	2	4	11.1	22.2

It is, perhaps, worth noting that, in this case, a fair proportion of children marked "P" came in after 5 years of age, and it is worth noting also

that the larger proportions of the children marked "E" came to school before 5 years of age.

The next results presented are from the Boys' and Girls' departments of a school which I have described as situated in a rather poor neighbourhood, but which, during the period which my report covers, was not attended by very poor children.

TABLE XL

School "S." Boys.

Age of entry.	No. of entries.	No. marked P.	Percentage of children marked P.
3—3½	57	7	12.2
3½—4	25	1	4.0
4—4½	28	2	7.1
4½—5	32	4	12.5
5—5½	28	2	7.1
5½—6	9	0	0
6—6½	1	0	0
6½—7	1	0	0

It may be worth noting that 6 out of 16 children marked "P" entered school after 4½ years of age.

School "S." Girls.

Age of entry.	No. of entries.	No. marked P.	Percentage of children marked P.
3—3½	61	9	14.7
3½—4	46	4	8.6
4—4½	45	4	8.8
4½—5	31	5	16.1
5—5½	41	3	7.3

In this case even a larger proportion of the children marked "P" came to school after 4½ years of age.

The next results are those from School "C," an infants' department in a medium neighbourhood. In this case, as in School "G," the school was small

and the circumstances of the children well known to the Head Mistress; we therefore marked also the children with specially good homes; these, as before, were marked "E."

TABLE XLI.

School "C." Infants.

Age of entry.	No. of entries.	No. marked E.	No. marked P.	Percentage marked E.	Percentage marked P.
3—3½	8	5	1	62	12
3½—4	6	4	1	66	13
4—4½	12	1	2	8	16
4½—5	9	3	0	33	0
5—5½	8	4	2	50	25

It is worth noting that the highest percentages of children marked "E" are among the earlier entering groups, and the highest percentage of children marked "P" is to be found in the group of children who enter school after 5 years of age.

The next results are those from School "O. K.", which I have previously described as a new school situated in a poor neighbourhood.

TABLE XLII.

School "O.K." Infants.

Age of entry.	No. of entries.	No. marked E.	No. marked P.	Percentage marked E.	Percentage marked P.
3—3½	14	2	1	14.3	7.1
3½—4	12	0	2	0	16.6
4—4½	6	1	0	16.6	0
4½—5	13	4	0	30.7	0
5—5½	4	0	0	0	0

This distribution more nearly accords with that accepted by popular opinion than that of any other school in which my inquiry was made; but even here we find 14 per cent. of the earliest entering group are marked as coming from specially good homes.

School "O.K." Boys.

Age of entry.	No. of entries.	No. marked E.	No. marked P.	Percentage marked E.	Percentage marked P.
3—3½	23	0	2	0	8.6
3½—4	15	2	1	13.3	6.6
4—4½	17	3	2	17.6	11.7
4½—5	18	1	1	5.5	5.5
5—5½	23	4	1	17.4	4.3

The following table gives the results from a Boys' department situated in a very poor neighbourhood:

TABLE XLIII.

School "S. A." Boys.

Age of entry.	No. of entries.	No. marked E.	No. marked P.	Percentage marked E.	Percentage marked P.
3—3½	102	10	27	10	26
3½—4	60	4	19	7	32
4—4½	50	5	11	10	22
4½—5	42	4	10	9	24
5—5½	26	3	6	11	23

As was to be expected, there is a very much larger number of children marked "P," but it is worth noting that the proportion, both of those marked "E" and those marked "P," is fairly evenly distributed between all the groups of entry.

Finally, I present the results of an inquiry into the cases of all the infants promoted in one year (1905) to the senior department of a school in an extremely poor neighborhood.

TABLE XLIV.

School "N." Promoted Infants.

Age of entry.	No. of entries.		No. marked P.		Percentage marked P.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
3—3½	3	5	3	2	100	40
3½—4	10	5	2	2	20	40
4—4½	12	15	2	3	17	20
4½—5	8	11	3	3	37	27
5—5½	6	4	2	1	33	25

Summing up the evidence of this section, I think we can say with confidence that children from "poor" homes not only do not exclusively form the early entering groups of Board School children, but that they are fairly distributed among the various ages of entry and that, even in the poorest neighbourhoods, a fair proportion of them come after 5; that is, after the limit of the compulsory school age is passed. But the popular notion, namely, that the children from "poor" homes all come to school at 3 years of age, and all the children from "good" homes at 5 years of age, is not entirely incorrect.

Can we test the point by *summarizing* the results from all the schools dealt with? In this case I think we can safely do so, since the standard for "poor homes" was the same, however variously the schools were situated.

TABLE XLV.

All schools.

Age of entry.	Total entries.	Total marked P.	Percentage marked P.
3—3½	341	62	18.2
3½—4	246	38	15.4
4—4½	301	40	13.3
4½—5	344	41	11.9
5—5½	302	24	7.9
5½—6	38	1	2.6

The summarized table shows that there is approximately the *same* number of children from "poor homes" entering from 3½ to 4, from 4 to 4½, and from 4½ to 5; a much *larger* number entering from 3 to 3½ and a much *smaller* number entering after 5.

Are we entitled to suppose that the earlier enter-

ing groups would have shown greater proportional progress than the groups who enter later if the proportion of children marked "P" had been as high in the later as in the earlier groups? Let us test this hypothesis in one or two cases, selecting those most obviously favourable to it, namely, those in which we have a large proportion of children marked "P."

TABLE XLVI.

School "S. A." Boys. (See Table XLIII.)

Age of entry.	Total entries.	Average progress mark.	Entries excluding "poor" children.	Average progress mark.
3—3½	102	15.4	76	17.2
3½—4	60	11.5	40	13.3
4—4½	50	13.6	39	14.1
4½—5	42	10.9	32	12.4
5—5½	26	4.4	20	5.1

It is obvious that the elimination of the poor children has slightly raised the progress marks of each section, the mark of the group entering from 3 to 3½ by 1.8; that of the group entering from 3½ to 4 by 1.8; that of the 4 to 4½ group by .7; that of the 4½ to 5 group by 1.5; and that of the latest entering group by .7. But the elimination has left the relationship between the progress marks of the various groups practically unchanged. We have no need, apparently, even in very poor schools, to consider the inclusion of the marks of the "poor" children within the grouped averages as vitiating the conclusion which would be drawn from the tables if the "poor" children were excluded. Let me take one further illustration.

TABLE XLVII.

School "S." Girls. (See Table XL.)

Age of entry.	Total entries.	Average progress mark.	Entries excluding "poor" children.	Average progress mark.
3—3½	61	19.4	52	21.3
3½—4	46	17.9	42	18.6
4—4½	45	20.8	41	21.4
4½—5	31	16.3	26	16.1
5—5½	41	13.7	38	13.6

The elimination of the "poor" children has had very little influence on the averages; in the later entering groups it has even depressed them slightly. But the important point is that the relation between the averages of the various groups remains practically unchanged.

In the case of many schools it is obvious at a glance that the number of "poor" children in each group is quite insufficient seriously to affect the average for the group; and I have shown in two cases where a considerable number of poor children are to be found that the elimination of their marks leaves the relationship between the marks of the groups who enter at different ages practically unchanged.

V.

INFLUENCE OF EARLY ENTRY ON BEHAVIOUR AND ATTENTIVENESS.

Experienced Head Teachers of Infants' departments, so far as my knowledge goes, have always been divided as to the value of school attendance for children under five as far as intellectual proficiency and subsequent school progress were concerned. But there was much less division of opinion on the question I now propose to answer.

In what way, if at all, do children who enter school at 3 years of age differ from those who enter later in their subsequent behaviour and attention in school?

The Head Mistresses I questioned were unanimously in favour of the opinion that early entry meant better behaviour and improved and sustained power of attention. I could not find that any attempt had actually been made to investigate the matter; but that is hardly to be wondered at; the affirmative answer seems self-evident.

I do not suppose that any of my readers will doubt that the teachers who are teaching the children are competent to give them a satisfactory mark for behaviour. They were asked to keep their children under careful observation with the problem of allotting a "conduct mark" in mind. In some schools, indeed, a conduct mark is regularly given as part of the terminal examination.

But what exactly do we mean when we try to measure attentiveness? Attention has no meaning apart from some activity or function within which it is working. The very form of the word indicates that attention must be "to" something. What, then, can we mean by a measure of attention? A child, for example,—it is an extreme case—may, as we say, have no more attention to give to hitting bulls'-eyes, but plenty for solving quadratic equations. Reverse the illustration, and my reader will more readily accept my standpoint. How then can I, holding this view, obtain a numerical evaluation of attention *per se?*

Teachers had argued that children who came at three years of age were more attentive than those who entered school later; and they meant by this that they appeared to listen better to their teachers and to try harder and more continuously to do the school work which was set them to do, or which they undertook for themselves. Roughly speaking, if they were attentive in many ways and to many things, they were regarded as deserving a high mark. In the schools in which an 'attention' mark was given to individual pupils, I was able to obtain the services of the teacher of the class and of the Head Mistress. They jointly decided as to the mark deserved by each pupil.

I took no observations in senior departments, since those from the first cases in infants' departments were so conclusive that I thought it unnecessary to go further.

I give first the results from School "C," in which my readers may remember there was perhaps some

very slight intellectual advantage from earlier as compared with later entry into school. In this school the mark for behaviour and attentiveness was given as a combined one.

TABLE XLVIII.

School "C." Infants.

Age of entry.	No. of entries.	Average mark for behaviour and attentiveness.
3—3½	8	7.5
3½—4	6	7.0
4—4½	12	6.1
4½—5	9	6.4
5—5½	8	7.2
5½—6	4	7.7

It is probable, from the appearance of these averages, that there is a slight negative correlation, if any, between length of school life and conduct and attentiveness. It is well to turn to the table which shows for this school the number of children who come from specially good and from poor homes (Table XLI.); and it will be found, I think, that the variations in the homes of the children do not account for the increase of the mark, which coincides with a later age for commencing school.

The next results are those from the infants' department of School "R." No attempt was made to give a mark for behaviour; it was sufficiently obvious that the 'bad cases' had not entered at any particular age; but great care was given to the assessment of the mark for attentiveness.

TABLE XLIX.

School "R." Infants.

Age of entry.	No. of pupils.	Average mark for attentiveness.
3—3½	9	6.5
3½—4	10	7.2
4—4½	13	6.6
4½—5	33	7.2
5—5½	23	6.5
5½—6	8	8.0
6—7	4	6.5

The only conclusion we can draw is that, by the time the age of 7½ years is reached, the age of entry, in so far as the development of good behaviour and attentiveness is concerned, is irrelevant.

In the next school I obtained separate marks for Conduct and Attentiveness.

TABLE L.

School "G." Infants.

Age of entry.	No. of children.	Conduct, average mark.	Attentiveness, average mark.
3½—4	5	6.8	7.0
4—4½	14	7.3	8.2
4½—5	21	7.0	7.5
5—5½	11	7.7	7.0

There appears to be a very slight disadvantage in early entry as far as conduct is concerned and a very slight advantage so far as attentiveness is concerned, but so slight as to be doubtful in both cases as to whether it exists or not.

In the next school also I was able to obtain a separate mark for Behaviour and Attention.

TABLE LI.

School "O. K." Infants.

Age of entry.	No. of children.	Conduct, average mark.	Attentiveness, average mark.
3—3½	14	7.7	7.5
3½—4	12	6.5	7.4
4—4½	6	8.6	8.8
4½—5	13	7.4	8.1
5—5½	4	8.0	7.7

It is fairly certain even from the inspection of these averages that the advantage in conduct and attention does not lie with the groups of early entry. It must be remembered, however, that the only children in this department marked as coming from poor homes are in the first two groups; the subtraction of these cases, however, still leaves the average mark in the two early groups lower than in the later ones.

Finally, I give the mark for attentiveness, obtained after a month's observation by new teachers, of the infants promoted to the girls' and boys' departments of School "N," which, my reader may remember, was situated in an extremely poor district.

TABLE LII.

School "N." Promoted Infants.

Age of entry.	No. of children.	Power of attention, average mark.	M. V.
3—3½	8	6.2	1.7
3½—4	15	6.1	1.6
4—4½	27	6.4	1.9
4½—5	19	7.1	2.1
5—5½	10	5.6	2.0

VI.

SUMMARIZED CONCLUSIONS.

It is not usually an easy thing to present summarized conclusions which are not misleading, but I think in the case of this inquiry it will be easier than usual on account of the uniformity of the results. I think my reader will accept the following as what an American would call conservative conclusions, by which, if I understand him rightly, he means conclusions that are very fully justified by the facts.

1. That from the entrance age of three to five, early entrance confers no intellectual advantage on the child, either in his infant school work or in his subsequent progress in later school life.

2. That there is some reason to suppose that children who enter after 5 years of age show some retardation in subsequent school progress. In some schools that was by no means the case; in the one indubitable case, School "S. A.," it might be explained by special difficulties of organisation; but there are, I think, minor indications here and there which collectively make it likely that, at least in poor districts, a child who enters much after 5 will suffer intellectual loss. But I am fully conscious that these children who enter after 5 are "selected" children. Some are weak in health, some come from very good homes and have had a good deal of instruction at home, and some have been *driven* into

school by the compulsory attendance officials. So that I feel little confidence in any conclusion concerning children who begin school, as these do, after the compulsory age. But as the proportion of children with 'poor homes' who enter after 5 is very small, it is probable that the home circumstances of this group are, on the whole, above the average. If this is so, there is ground for supposing that entry after 5 is somewhat disadvantageous.

3. That these conclusions are quite independent of the particular form of teaching adopted. The great elasticity of the English elementary educational system, obtaining more especially during the last ten years, has given rise to a number of widely varying schools, diverse both in results and methods. I was careful to include schools of different ideals and different methods in the range of my inquiry. Identical results are found in schools in which the youngest classes did nothing but "kindergarten" work, and in schools in which no "kindergarten" work was done.

4. That, even in poor neighbourhoods, only a small proportion of children now avail themselves of the permission to come to school at 3, and may come after 5—the compulsory school age—is passed.

5. That children who come from very poor homes, that is, from homes in which there is no adequate supervision for the young child, are smaller in number than is generally supposed; and that, even under present conditions, such children commence to attend school not at one special age, but fairly evenly, in the same proportions as the other children, between the ages of 3 to 5½ years. But not quite

evenly; there is some positive correlation between 'poor homes' and early entry. There are probably rather more children in the schools who come from 'poor homes' than are scheduled here. For no child is scheduled who has not passed his whole school life within the same school—a condition which, of necessity, excludes the "floating" population, among which a larger proportion of children with poor homes is to be expected than amongst the remaining children. An important point is that the elimination of children with "poor homes" from the schedules leaves the main contention (conclusion 1) unaffected.

6. That no advantage appears to exist in early entry so far as the subsequent attainment of good behaviour and the development of attentiveness are concerned.

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